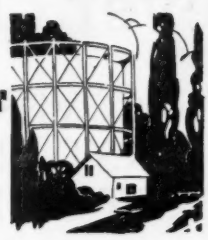
GAS JOURNAL

LIGHT · HEAT · POWER · BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

VOL. CXC. No. 3489.] LONDON, APRIL 2, 1930. [82ND YEAR. PRICE 1s.



"Foochow"

"More than Paint"

PERMANENT GREEN PAINTS

The Indestructible Protective film

IS A GAS HOLDER A THING OF BEAUTY?

It has been recently suggested that a gasometer could be a thing of beauty! At any rate it need no longer be unsightly if it is painted with "FOOCHOW" PERMANENT GREENS, and may be made to harmonise with the surrounding countryside.

Many leading Gas Works employ "FOOCHOW" PERMANENT GREENS. They are completely stable against gas works' fumes. Further, they are fast to sea air and sunlight. For all industrial structures these Anti-corrosive Greens have proved entirely suitable—being in every way at least as durable if not more durable than red oxide.

There is extra economy as well as extra protection in "FOOCHOW" PERMANENT GREENS owing to exceptional covering and obliterating power. Let us send you samples, and names of Gas Works where used.

DONALD MACPHERSON & Co LTD

MITCHAM, LONDON & KNOTT MILL, MANCHESTER

H.C.T.

PATENT RETORTS LTD.

SUPPLIERS OF PLANTS FOR

COMPLETE GASIFICATION OF COAL

5, VICTORIA STREET, LONDON, S.W.1.

JOSEPH EVANS & SONS, (WOLVERHAMPTON) LTD.

CULWELL WORKS, WOLVERHAMPTON.

Telegrams: "EVANS, WOLVERHAMPTON." National Telephone No. 39.

London Address: 109, Kingsway, W.C.2. Telephone: HOLBORN 1091. Telegrams: "DRYOSBO, WESTCENT, LONDON."

Please apply for Catalogue No. 8.

TRADE MARK.

Fig. 705. "SINGLE RAM" STEAM-PUMP.

Fig. 598. "CORNISH" STEAM-PUMP FOR BOILER FEEDING, &c.

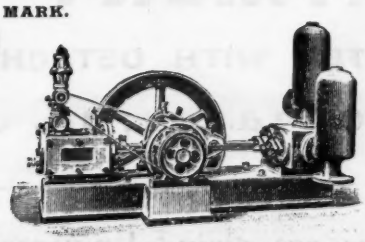


Fig. 685. "RELIABLE" STEAM PUMP FOR TAR AND THICK FLUIDS.

Fig. 712. "DOUBLE-RAM" STEAM-PUMP.

FUEL CONSERVATION

If your Coke Stocks are low, instal a

"Retriever" Pan Ash Separator

(Registered Trade Mark)

AND

RECOVER ABOUT **40 %** OF FIRST-CLASS FUEL FOR RETORT FURNACE USE.

The "Retriever" will also produce WASHED COKE BREEZE, an ideal Fuel for Domestic Boilers and Industrial Purposes.

Waller's ***NEW MODEL "PHŒNIX" COKE BREAKER*** *is recommended in conjunction with the above.*

COMPLETE PLANTS SUPPLIED FOR COKE BREAKING, ELEVATING, GRADING, AND STORAGE.

GEO. WALLER & SON, Ltd. PHŒNIX IRON WORKS, STROUD, GLOS.

Telegrams: 'WALLER, BRIMSCOMBE.' Telephone: 10 BRIMSCOMBE.

LONDON OFFICE: 149-150, PALACE CHAMBERS, S.W. 1. Telephone: 9476 VICTORIA.

AGENTS FOR SCOTLAND - MESSRS. MILNE & MITCHELL, 75, BATH STREET, GLASGOW.

Telegrams: "Gaslights Glasgow." *Telephone: 680 Douglas.*

For our other Specialities see S.B.G.I. Directory

GEORGE ORME & CO.

(Branch of Meters Ltd.),

Atlas Meter Works,

Telegraphic Address: "ORME, OLDHAM."
Telephone: No. 93 OLDHAM.

PARK STREET, **OLDHAM.**

"NEW CENTURY"

IMPROVED PATENT COIN

PREPAYMENT GAS-METERS

FITTED WITH DETACHABLE ATTACHMENTS.

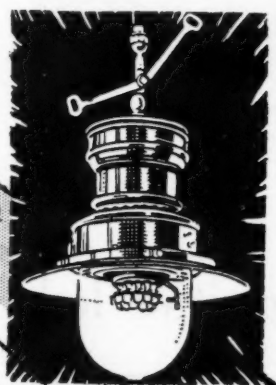
ARRANGED FOR 1d., 6d., 1s., OR ANY OTHER COIN DESIRED.

These Meters are giving Universal Satisfaction wherever adopted.

The Public Demand for BETTER STREET LIGHTING IS INSISTENT

IN GREAT FAVOUR for lighting from tramway standards, for central suspension and for use on three or four-way fitments at road junctions—The

"ROCHESTER" Suspension Lamp.



NO longer can this most urgent need be neglected by local authorities! Every day the traffic increases in volume and becomes faster—always faster! In some instances the Government have found it necessary to take action to obtain the much needed better lighting. The two lamps shown here are being widely adopted—how about your area? Be sure the matter is being canvassed—and now!

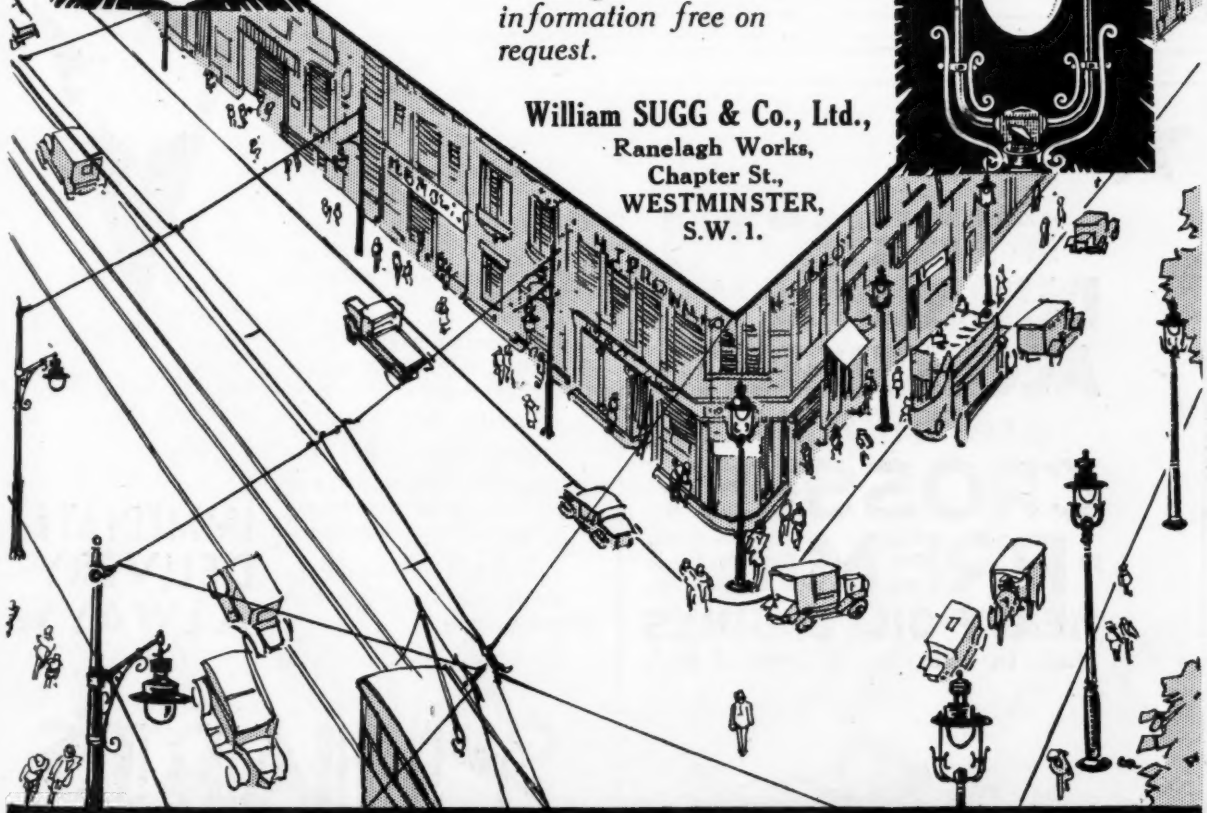
Catalogues and all information free on request.

William SUGG & Co., Ltd.,
Ranelagh Works,
Chapter St.,
WESTMINSTER,
S.W. 1.

SUGG WESTMINSTER

WIDELY USED all over the world for the lighting of busy thoroughfares—outside the Houses of Parliament for example—The

Upright "LITTLETON" Lamp.



Wm. SUGG & Co. Ltd. RANELAGH WORKS, CHAPTER ST. WESTMINSTER · S.W. 1

"PARKINSON" LAMPS

with Pre-Heated Metallised Burners and Mantles in Alignment

FIG. "900" SERIES

LISTS, PRICES, AND SAMPLE - - ON - - APPLICATION.

W. PARKINSON & CO.,
INCORPORATED IN PARKINSON & COWAN (GAS METERS), LTD.,
BELL BARN ROAD, BIRMINGHAM.
COTTAGE LANE, CITY ROAD, LONDON, E.C. 1.
MORNINGTON STREET, BELFAST.

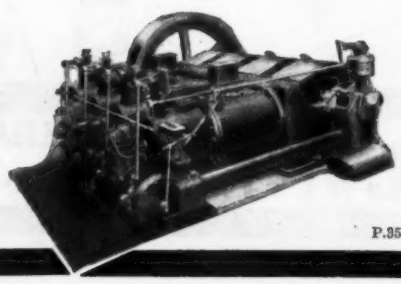
STRENGTH, DURABILITY & ACCESSIBILITY

are built into

CROSSLEY -PREMIER

HEAVY-OIL ENGINES

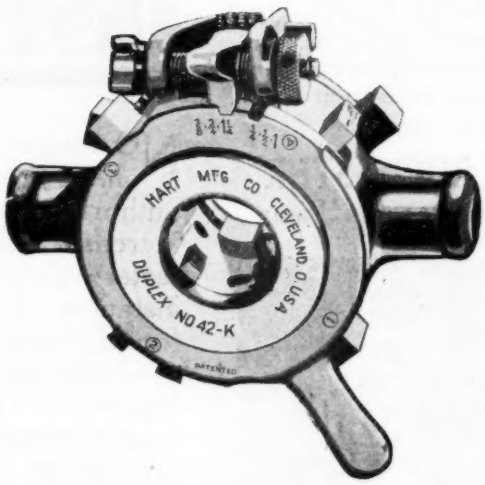
Made in sizes up to 1000 B.H.P.



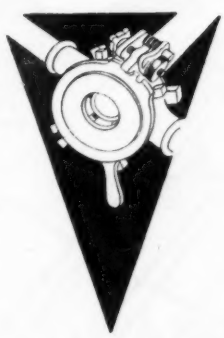
THE PREMIER GAS ENGINE CO., LTD., SANDIACRE Near NOTTINGHAM

P.35.

The ACE of HART'S



an actual positive lock.



Hart's Duplex Diestocks are the only diestocks with a positive lock. There are no frictional clamps, levers, screws, etc., which have to be forced by pressure or a blow to make them effective.

After the thread has been cut on the pipe just release the positive lock by moving a catch.

No turning back. Time saved. Adjustable quick-acting release of Diestock. No stripping of threads.

Hart's Duplex has the simplest construction and can be easily understood by the ordinary mechanic.

Ratchet patterns for easy threading in awkward positions.

IMMEDIATE DELIVERY ALWAYS

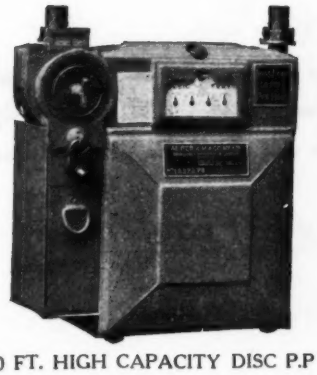
Specify HART'S DIE · STOCKS

Made by the Hart Mfg. Co., Cleveland, Ohio, U.S.A.

WALWORTH LTD., 90-96, Union St., Southwark, S.E.1.
MANCHESTER: 26, Bridge Street.
GLASGOW: 209, Berkeley Street, C. 3.

M.C. 175.

"A. & M." Quality is Proverbial



80 FT. HIGH CAPACITY DISC P.P

Gas Meters of all types.
Test Holders and Test Meters.
Street Lamps and Distance Controllers.
Pressure Recorders, Gauges, etc.

Please write for Catalogue.

Alder & Mackay Ltd
Established 1850

EDINBURGH : : LONDON
and BRANCHES

SALES: 1928, 1½ million yards; 1929, over 4 million yards.

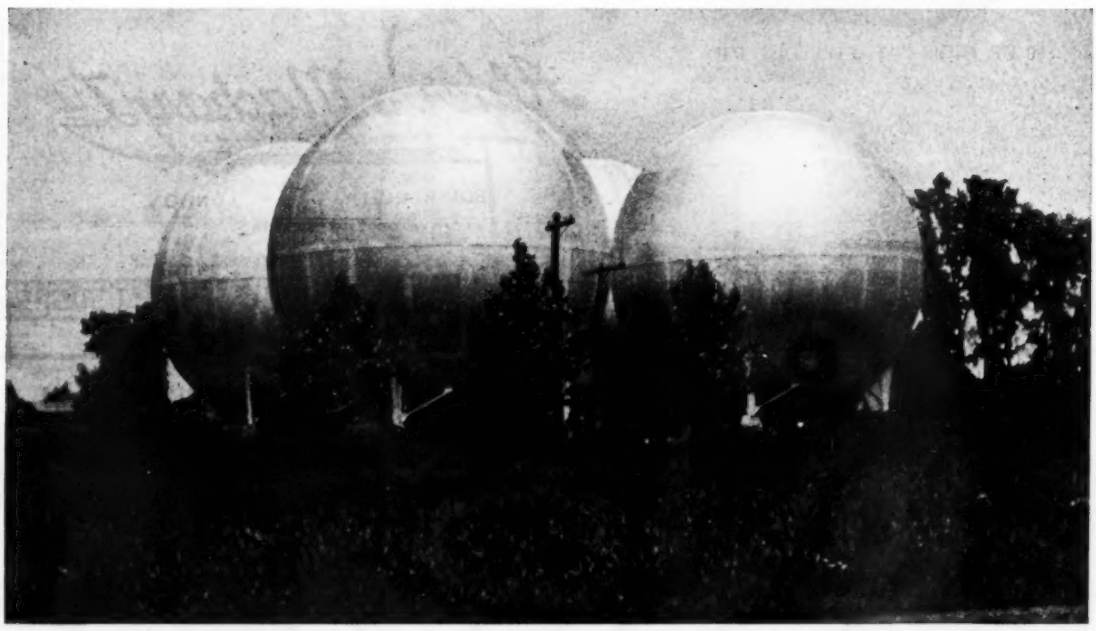
FOR PRICES AND PARTICULARS APPLY TO SOLE AGENTS:—

PAUL WINN & CO., Ltd., Oxford House, 15, JOHN ST., LONDON, E.C. 3.

HIGH PRESSURE SPHERICAL GASHOLDERS

"HORTONSPHERES"

The Solution of the Storage Problem



A recent installation of Hortonspheres for the Windsor Gas Co., Ontario, storing 1,000,000 c.ft. of Gas at 50 lbs. Pressure

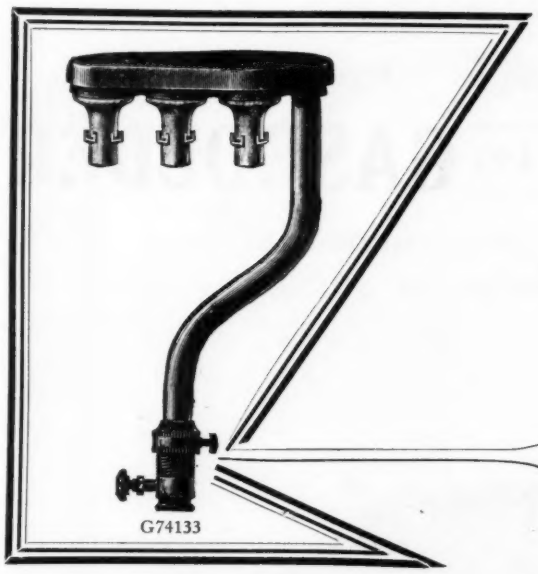
ANNOUNCEMENT

THE CHICAGO BRIDGE & IRONWORKS
have arranged with the following Firms to manufacture and erect in Great Britain and Europe, Hortonspheres, the High Pressure Spherical Gasholders operating so successfully in the United States of America and Canada. :: Full particulars gladly given on application to:—

THE WHESSOE FOUNDRY & ENGINEERING CO., LTD., Whessoe Foundry, Darlington, and 25, Victoria Street, S.W. 1.

C. & W. WALKER, LTD., Midland Ironworks, Donnington, near Wellington, Shropshire, and 70, Victoria Street, S.W. 1.

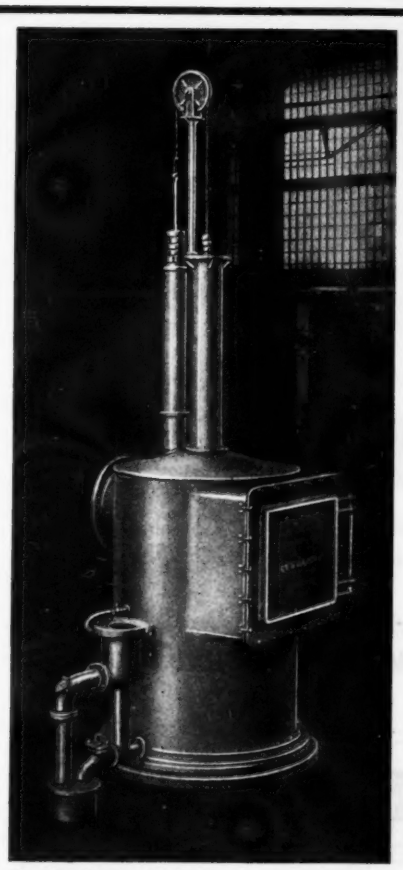
SAML. CUTLER & SONS, LTD., 39, Victoria Street, S.W. 1, and Providence Ironworks, Millwall, E. 14.



Why Use
EXPENSIVE GADGETS
TO COUNTERACT EFFECTS OF
VIBRATION?
Try Our
VERITAS PATENT
GRADUAL ACTION
GAS ADJUSTER
Absolutely VIBRATION-PROOF
IN CONNECTION WITH OUR
NEW OBLONG CLUSTER
STREET LIGHTING BURNER

Falk, Stadelmann, & Co. Ltd.
VERITAS LIGHT WORKS

83-93, FARRINGDON ROAD, LONDON, E.C. 1
Glasgow, Manchester, Birmingham, Dublin, Newcastle-on-Tyne, Cardiff.
Burner Works: Birmingham.


AS ERECTED AT WALSALL GAS WORKS.

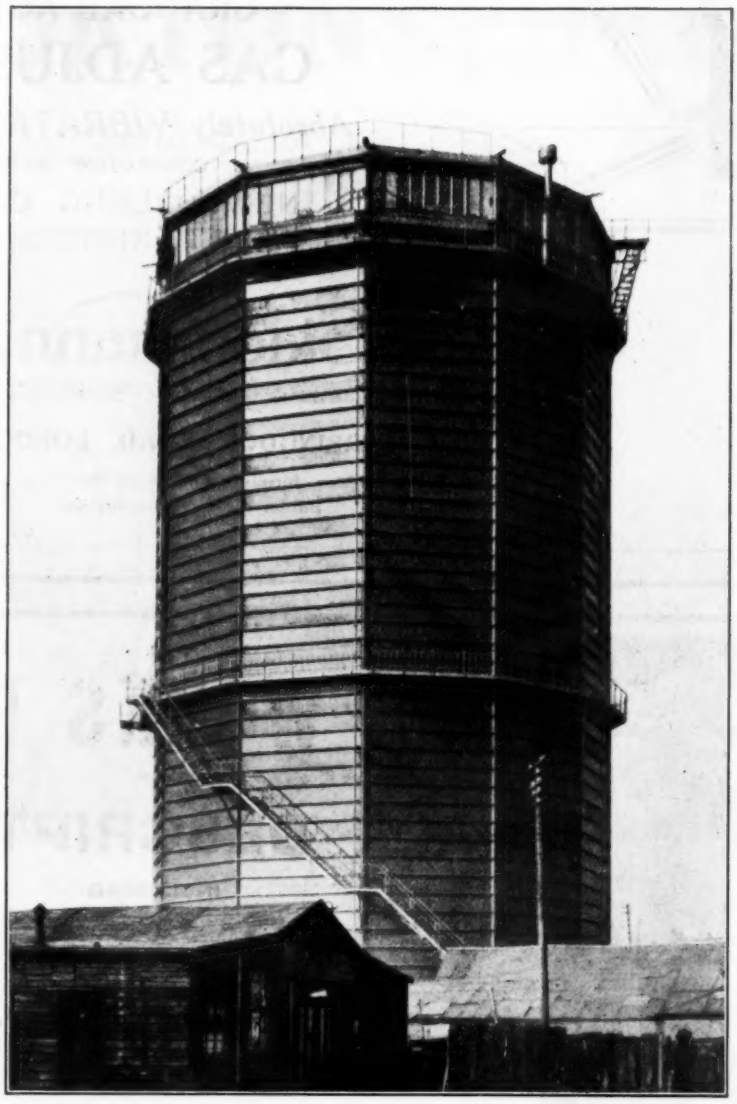
GAS WORKS PLANT
OF
ALL DESCRIPTIONS
INCLUDING
P. AND A.
TAR EXTRACTORS.

C. & W. WALKER, LTD.
DONNINGTON,
NR. WELLINGTON —— SHROPSHIRE.
LONDON OFFICE:
70, VICTORIA STREET, WESTMINSTER, S.W.1.

The practical advantages offered by the

WATERLESS (M·A·N) GASHOLDER

make it a paying proposition for *any* Gas Works—large or small



500,000 c.ft. WATERLESS GASHOLDER just completed at Northwich, Cheshire.
Diameter, 74 ft. Height, 136 ft. :: ALL-BRITISH CONSTRUCTION.

LICENSED CONTRACTORS FOR M.A.N. WATERLESS HOLDERS:—

R. & J. DEMPSTER, LTD. - Manchester
CLAYTON, SON & CO., LTD. - - - Leeds
ROBERT DEMPSTER & SONS, LTD. - Elland
E. COCKEY & SONS, LTD. - - - Frome

BRITISH EMPIRE LICENSEES:—

WATERLESS GASHOLDER CO., LTD.

13, ROOD LANE, LONDON, E.C. 3

10 minute Hot Water Service

With the full gas supply of 55 c.ft. per hour, adequate supplies of hot water for domestic use can be drawn off at any hot water tap within 10 minutes of lighting gas. Sufficient for a hot bath in 40 minutes starting from cold, with any number of baths to follow at 40 minute intervals. Thermostat cuts down gas consumption to under 2 c.ft. per hour which maintains the temperature until water is drawn off.

Richmonds

"EQUATOR"

INSULATED

HOT WATER CIRCULATOR

RICHMONDS GAS STOVE Co., Ltd.

WARRINGTON AND LONDON.

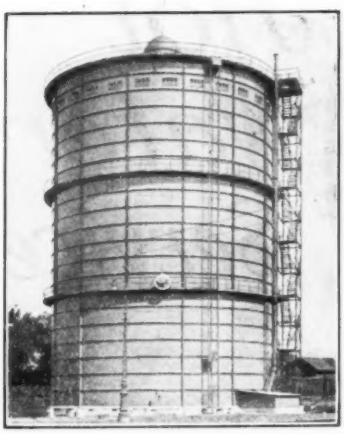
(Radiation Ltd., Proprietors.)

THE KLONNE SYSTEM OF TANKLESS GASHOLDERS

(Fully patented in all countries.)

BRITISH CONSTRUCTION THROUGHOUT.

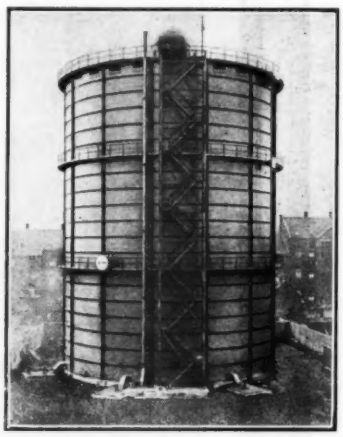
SIMPLE and RELIABLE.



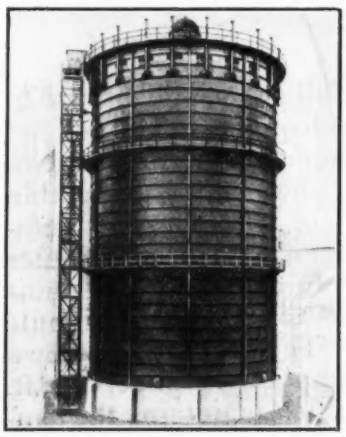
AUTOMATIC IN ACTION

NO TAR PUMPS

NO TAR SEAL



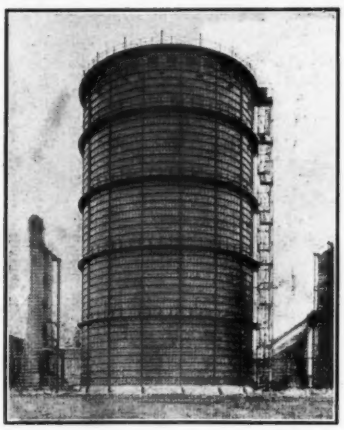
THE LAST WORD IN TANKLESS GASHOLDER CONSTRUCTION.



NO ATTENDANCE

DRY GAS

CONSTANT PRESSURE



8 Klonne Tankless Gasholders completed and working.

13 ,, ,, ,, under construction.

21 ,, ,, ,, ordered to date.

LICENSED MANUFACTURERS:—

SAML. CUTLER & SONS, LTD., 39, Victoria St., Westminster, S.W.1.

C. & W. WALKER, LTD., Wellington, Salop.

ASHMORE, BENSON, PEASE, & CO., LTD., Stockton-on-Tees.

NEWTON CHAMBERS & CO., LTD., Thorncliffe Ironworks, Nr. Sheffield.

THOS. PIGGOTT & CO., LTD., Atlas Works, Spring Hill, Birmingham.

THE HORSELEY BRIDGE & ENGINEERING CO., LTD., Tipton, Staffs.

Enquiries may be sent to any of the above Firms or to

DRY GASHOLDERS LTD., 39, Victoria St., Westminster

Telegrams:—DRYHOLDA. SOWEST. LONDON. Telephone:—0321 VICTORIA.

ARMCO
REGD. TRADE MARK
Ingot Iron

SPECIFY
THE PUREST IRON MADE
"ARMCO" INGOT IRON
WHICH
RESISTS CORROSION

PLATES.

TUBES & PIPES.

CONDUCTOR RAILS.

WELDING RODS.

DROP FORGINGS

SHEETS.

BLACK, C.R., C.A.
GALVANISED
TINNED
ENAMELLING
POSTER BOARD
DEEP STAMPING
etc., etc.

SECTIONAL MATERIAL

WIRE.

TELEGRAPH
SHEATHING
STRAND & STAY
BONDING
BARBED
FENCING
etc., etc.

CLOUT NAILS & RIVETS.

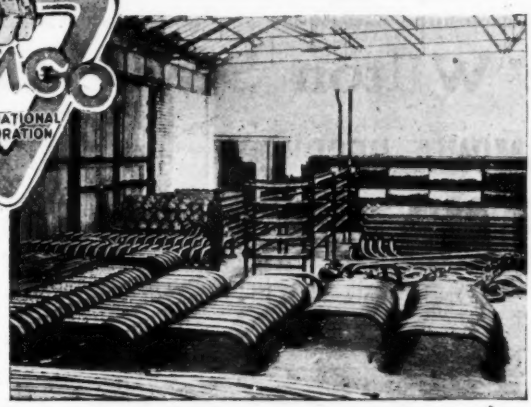
WINDOW FRAME SECTIONS.

COLD ROLLED STRIP.

EXPANDED METAL LATH.

TUBES AND PIPES.

ARMCO INTERNATIONAL CORPORATION
Regd. Trade Mark.



"Armco" Ingot Iron Tubes made by The Scottish Tube Co., Ltd. supplied to Messrs. Harrison, Morrison and Co., of Iquique, Chile.

Ingot Iron Tubes and Pipes can be supplied in diameters up to 72 in. The following characteristics of "Armco" Ingot Iron should be noted:

1. **It is the Purest Iron Made.**
2. **It resists Corrosion and Pitting.**
3. **It is uniform, it does not vary, it is made to one standard analysis.**
4. **It secures a firm grip of either spelter or paint.**
5. **It will give longer life than steel or less pure iron.**

The Scottish Tube Company, Ltd., of Glasgow, are the sole producers of "Armco" Ingot Iron Lap and Butt Welded Tubes and Pipes up to 12 in., and Guest, Keen and Piggotts, Ltd., of Birmingham, of Lap Welded Pipes over 12 in. diameter.

The Armco International Corporation

(Incorporated with Limited Liability in Ohio, U.S.A.)

64, Victoria Street, Westminster, LONDON, S.W.1

Telephone: Victoria 1426 & 1427. *Telegrams: Armcoingot, Sowest, London.*

INGOT IRON IN GREAT BRITAIN.—Ingot Iron is made in Great Britain for The Armco International Corporation by The Shelton Iron, Steel and Coal Co., Ltd., The Scottish Iron and Steel Co., Ltd., and Guest, Keen and Nettlefolds, Ltd. By exclusive arrangement, The Scottish Tube Co., Ltd., is the Sole Producer of butt-welded and lap-welded Tube and Pipe up to 12 in., and Guest, Keen and Piggotts, Ltd., over that size. The Whitecross Co., Ltd., is by like arrangement the Sole Producer of Wire, Welding Electrodes, and Cold-Rolled Strip from "Armco" Ingot Iron. Tyer & Co., Ltd., act as Agents for The Whitecross Co., Ltd., for the sale of "Armco" Ingot Iron Wire to Postal Authorities, Cable & Railway Companies.

ARMCO
REGD. TRADE MARK

Gas and Coke Oven Bye-Product Recovery Specialists :: ::

Wilton

Contractors for complete Gas Washing, Condensing and Bye-Product Plants

STATIC
WASHER-SCRUBBERS

A NEW DEPARTURE:—All the advantages of Tower Scrubbers, combined with those of Mechanical Washing Devices, are embodied in

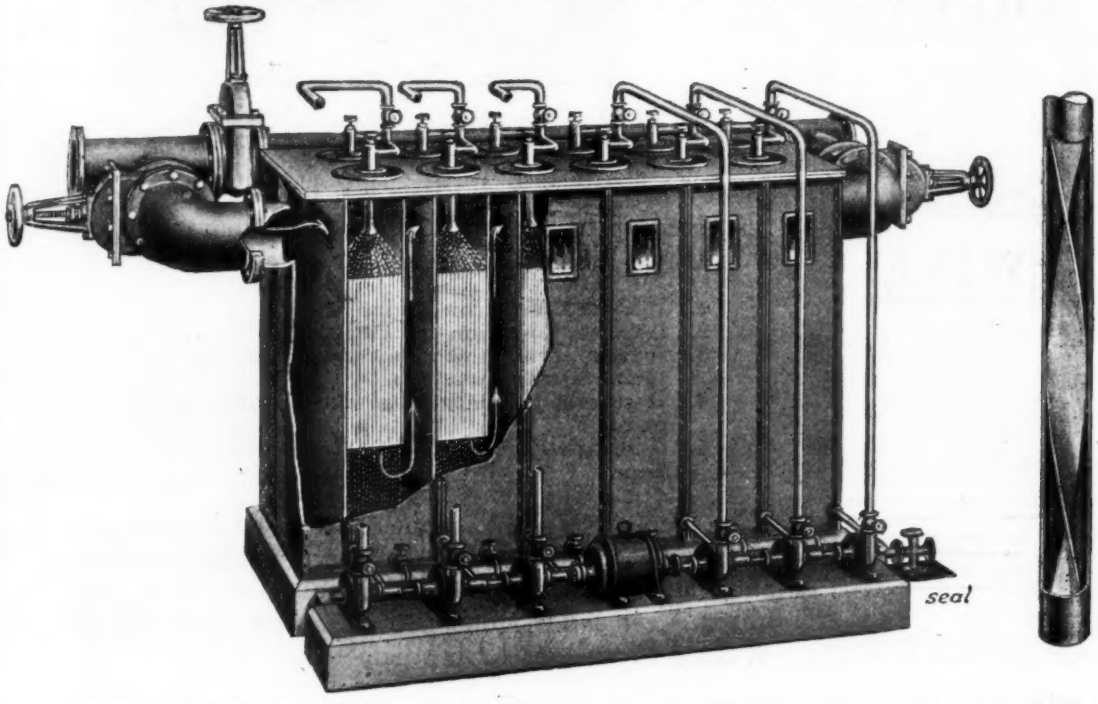
The Wilton Static Washer-Scrubber

FOR

AMMONIA RECOVERY — REQUIRES NO FRESH WATER.

SCRUBBING COMPLETED WITH PREPARED VIRGIN LIQUOR.

BENZOLE RECOVERY. NAPHTHALENE REMOVAL. GAS DEHYDRATION PLANT.
COMBINED NAPHTHALENE AND GAS DRYING PLANT



We draw your attention to the following:

(1) INITIAL CAPITAL OUTLAY LOW—LOW WORKING COSTS
(2) NO INTERNAL MOVING PARTS—BREAKDOWN ELEMENT ELIMINATED
(3) LESS SPACE REQUIRED—MAXIMUM EFFICIENCY AT MINIMUM COST
(4) PUMPS SPECIALLY DESIGNED FOR CONTINUITY OF WORKING
(5) PATENT SPIRAL PACKING ENSURING INTIMATE WASH-CONTACT

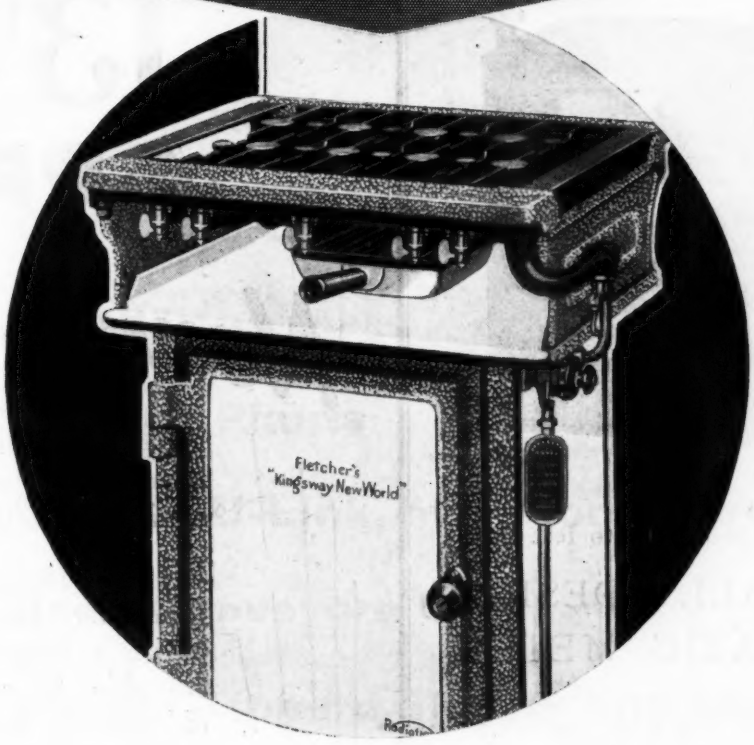
For full particulars apply

THE
Chemical Engineering & Wilton's Patent Furnace Co. LTD.
76, VICTORIA STREET, LONDON, S.W. 1

Telephones: Local Calls—VICTORIA 2417.
Trunk Calls—VICTORIA 7091 & 7092.
Telegrams: "EVAPORATOR PHONE LONDON."

The Fletcher

KINGSWAY



NEW WORLD

The remarkable features of the "New World" design of oven with its exclusive *additional* low temperature zone at the bottom, are incorporated in the "Fletcher Kingsway New World."

The Public is realising fully the great advantage of simultaneous whole-dinner cooking—by which all the courses go into the oven *together* and are removed *together*, being entirely unattended meanwhile—and with the Fletcher "Kingsway New World" the Gas Undertaking can take advantage of this unique sales feature with the utmost confidence.

FLETCHER RUSSELL & Co LTD

4, Berners St., Oxford St., London.—Works, Warrington.

(Radiation Ltd., Proprietors.)

One of the Most Efficient Prepayment Meters Yet Designed.

Engineers are invited to test the

"DOUGALL" DESIGN AUTOMATIC METER

It embodies a simple

TWO-COIN DEVICE

which can be changed in an instant from **1d.** to **1/-** or vice versa.

Valve opens at 5 cubic feet without the aid of a spring.

Dougall's Meters prevent fraud. They cannot be pumped for free gas.

Large Cash Box.

SUPPLIED IN "LIGHTS" STANDARD AND HIGH CAPACITY.

DOUGALL'S GAS METERS, Ltd.

CHISWICK, LONDON, W.4.

Telegrams— Increasing, Chisk, London.

Telephone— Chiswick 1965.

SUMMER TIME

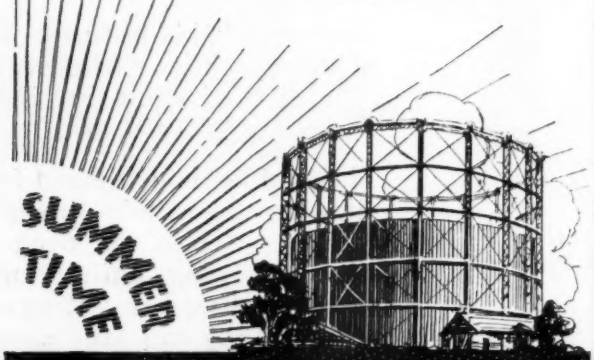
from the

13th APRIL

Now is a favourable time to proceed with the construction of new Plant and the reconditioning of Plant which will be required for service later in the year.

We manufacture all kinds of Plant for Gas Works, and having a large "outside" staff are able to carry out expeditiously the RE-SHEETING AND ADDING OF LIFTS TO GASHOLDERS.

We should be pleased to have your enquiries for schemes you have in mind.



ASHMORE, BENSON PEASE & Co LTD

GAS PLANT MANUFACTURERS

PARKFIELD WORKS, STOCKTON-ON-TEES

W. J. JENKINS & CO. LIMITED

Complete Carbonising Plants

Steel Structures

Telpher Plants

DB, GB, U-Link, etc., Conveyors

Band Conveyors

Wagon Tippers, Rotary and End

Coal Breakers

Coke Cutters

Screens, Rotary and Vibratory

Tar Extractors

RETFORD, NOTTINGHAM

TELEPHONE: 131-132 RETFORD TELEGRAMS: JENKINS RETFORD

LONDON OFFICE: 17, VICTORIA STREET, S.W.1

TELEPHONE: VICTORIA 5981

HUMPHREYS & GLASGOW LTD.

BLUE
and
CARBURETTED

WATER-GAS

Perfected Plants & Processes

Using Either Coke or Coal

For Manual or Mechanical } *Operation*

Greatly Reducing Cost of Gas

HUMGLAS HOUSE, CARLISLE PLACE (Victoria), LONDON, S.W.1.

CONTENTS.

EDITORIAL NOTES.

Optimism in Practice 19
Making History 19
Coal 20
A Discourse on Pans 20
Leeds—Commercial Sections 20
The Power of Advertisement—Standardization of Gas Charging 21
IN TO-DAY'S "JOURNAL" 23

Forthcoming Engagements 21
Personal 23
Obituary—
Norman Simpson Cox 23
J. W. Slack 23
Evening Star Lodge, No. 1719—Installation Meeting 24
Joint Meeting of Juniors in Manchester . . 24
Midland Junior Gas Association—
Visit to the Works of the Bryan-Donkin Company, Chesterfield 24
Mr. J. Sandon Stubbs on "Gas Service"—Address to Liverpool Rotarians 24
Co-Operation between Institution of Municipal Engineers and Institution of Gas Engineers 25
Retirement of Mr. W. Gosling 25
Smoke Prevention in the Sheffield Steel Trades 25
Manchester District Institution of Gas Engineers—
Diamond Jubilee Celebration 26
Luncheon 27
Southern Association of Gas Engineers and Managers—
Luncheon 29
Business Meeting 29
Presidential Address of Mr. Frank H. Jones, M.Inst.C.E. 33
A Fine Example of Street Lighting by Gas . 31
Presentation of Long-Service Medals . . . 34
Gas at Olympia—"Daily Mail" Ideal Home Exhibition 35
Time-Honoured Service with the Davis Gas Stove Company 40
London and Southern District Junior Gas Association—
Hotplate Efficiencies and Oven Ventilation. By H. T. Angus, Ph.D., M.Sc. . . . 41
Pressure Gas Storage 43

CORRESPONDENCE.

Oxide Purification 21

COMMERCIAL AND INDUSTRIAL.

Stock Market Report 22
Coal Markets 22
Trade Notes 22
Current Sales of Gas Products 22
Contracts Open 22

PARLIAMENTARY INTELLIGENCE.

House of Lords—
Special Orders 32
Private Bills 32
House of Commons—
Special Orders 32
Private Bills 32
Glasgow Corporation Bill 32
Plymouth Gasholder 32
Coal Mines Bill 32
Brighton and Hove Gas Bill 32

REGISTER OF PATENTS.

Liquid Purification—Hansen, C. J., and Heinrich Koppers Aktiengesellschaft 44
Stuffing Box and Piston Packing—Gas Light and Coke Company, and Birks, F. M. . . . 44
Gas Washers—Jensen, C. A. 44
Incandescent Combustion — Premix Gas Plants, Ltd., and Docking, A. 44
Complete Gasification—Tully, Sons, & Co., Ltd., and Tully, C. B. 44
Applications for Patents 44

MISCELLANEOUS NEWS.

Auckland Gas Company — Sixty-Eighth Annual Meeting 32
British Gas Light Company, Ltd.—Annual General Meeting 45
Gas Companies' Results in 1929—Hardly a Moribund Industry 46
Stock and Share List 47

PARAGRAPHS.

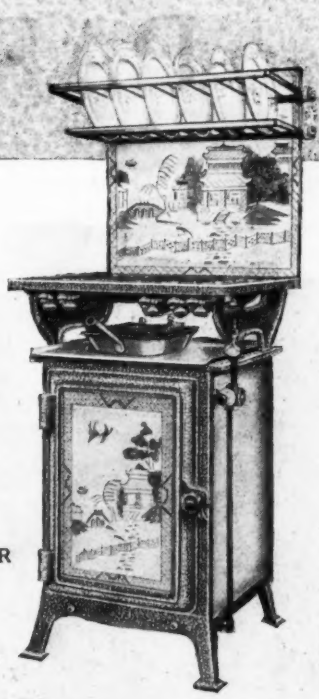
Junior Institution of Engineers—Slough Stock Issue—Adaptation of Gas to Street Lighting—Nottingham's Gas Supply 25
"Patents and Trade Marks" 31
North British Association of Gas Managers . 40

"JOURNAL" OFFICE TELEPHONE.

The "Journal" Office Telephone Number is "Central 6055."

For List of "JOURNAL" Advertisers, see p. 52.

Governor General
GAS COOKER



UTILITY

SIMPLE AUTOMATIC CONTROL OF OVEN
ECONOMY OF FUEL
CLEANLINESS

In every detail a product of Concentrated Thought and Scientific Deduction !

AUTO-HEAT ECONOMIC REGULATOR

Positive and Accurate Control
Simplicity for Cleaning in Situ
Sensitive Action Compensating Severe Pressure Differences

WILLOW PATTERN EXTERIOR ENAMELS

No Home is complete
without the comfort given by
Gas Service

No Gas Service is complete
without the security given by the
Thomas Glover Meter

Advertisement of Thomas Glover & Co., Ltd.

PARKINSON'S

PREPAYMENT METERS,
"Lights," "Standard," or
"High Capacity."

UNSURPASSED FOR QUALITY.

FITTED WITH LONG RANGE ATTACHMENT.

Outside Valve, Easily Accessible for Cleaning.

W. PARKINSON & CO.,

INCORPORATED IN PARKINSON & COWAN (GAS METERS), LTD.

Cottage Lane, City Road, LONDON, E.C.1.	Bell Barn Road, BIRMINGHAM.	Mornington Street, Ormeau Road, BELFAST.
Telegrams: "Index, 'Phone, London."	"Gasmeters, B'ham."	"Prepayment, Belfast."
'Phone Nos.: 4270 Clerkenwell	2245 Midland, B'ham.	3374 Belfast.

GAS JOURNAL

LIGHT ⁘ HEAT ⁘ POWER ⁘ BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

PROPRIETORS WALTER KING, LIMITED OFFICE 11, BOLT COURT, FLEET ST., LONDON, E.C. 4.

Telephone: Central 6055. —— Telegrams: "GASKING, FLEET, LONDON."

VOL. CXC. No. 3489.] WEDNESDAY, APRIL 2, 1930. [82ND YEAR.

Editorial Notes.

Optimism in Practice.

"LOOKING at the people who are now conducting it, and "at the younger people who are likely to conduct it, I "feel very strongly that all is well with gas." These words, spoken by Mr. Frank H. Jones, M.Inst.C.E., at the luncheon which preceded the annual meeting of the Southern Association of Gas Engineers and Managers, are indicative of the spirit of the Presidential Address which he delivered subsequently. Mr. Frank Jones is a thoroughgoing optimist, but he is an optimist of the right kind—not the sort that wakes up to mutter "All's well," and then turns over on to the other side to go to sleep again. The optimism we want so much now—and the President possesses it in plenty—is that which recognizes the certainty of full reward for great endeavour. Things do not, as was pointed out by Mr. C. S. Shapley on the same occasion, tend to become any easier as time passes. There is no room for a Micawber-like attitude, or for happy-go-lucky methods; but those who are optimistic enough to seek diligently will surely find.

Gas is now facing severe competition at the hands of coal, oil, and electricity. This competition may be keener in the future; but though they may be harder to grasp, the opportunities will still be there. This is the knowledge which leads Mr. Frank Jones to express his confidence that the gas industry will prosper in the next fifty years in an even greater degree than it has done during the last fifty, and this is the knowledge which induces him to bid the industry prepare to seize the opportunities as they are recognized. How? By attracting the right type of man to the industry. There should be no difficulty inherent in this; but good men—for whatever branch of the industry they are destined—require good remuneration; and how often have we heard complaints of the failings of the gas industry in this respect. The prospects must in all cases, and not in the majority only, be commensurate with the qualifications required. The Education Scheme of the Institution of Gas Engineers is available; but, as Mr. Frank Jones rightly pointed out, "it "is up to the gas industry itself to see that, if the people "are available, and are trained, and are suitable, the at-"traction of a gas-works and its offices should be a "congenial, interesting, and properly paid future for "those who enter it."

The address is filled with sound argument and helpful suggestion; but had it contained none other than the thoughts to which we have here drawn attention, it would have placed the Southern Association under a debt of gratitude to their President.

Making History.

SIXTY years of sterling work on behalf of the industry have brought the Manchester District Institution of Gas Engineers to their Diamond Jubilee, which was celebrated in appropriate manner last week. It was an occasion for congratulation, and we join ours to the many others received. Sixty years is a long span; but there is left still one member—Mr. John Booth, of Southport—who was present at its first annual meeting. Many things have changed since then, but the spirit of the industry remains as sound as it ever was, and the next sixty years will certainly not be less eventful than the last. Great as has been the progress made, the time has not yet arrived when it is possible to place any limit upon future developments; and in connection with what is to come Manchester will play its part, as it has done in all that has gone before.

In the movement towards co-operation Manchester has made much history. Not only is it the home of the senior of the English District Associations, but it was there that the first meeting was held in 1863 of the British Association of Gas Managers, which in 1881 became the Gas Institute; and in the possession of Mr. William Newbigging, of Manchester, there are two letters written by Mr. Alfred Giles, also of Manchester, to the late Mr. (afterwards Dr.) Thomas Newbigging, at that time Secretary and Manager to the Rossendale Union Gas Company, at Bacup. The first of these letters (which we have been privileged to inspect) is dated Oct. 26, 1863, and in it the writer assumes, from conversation that had already passed, that Mr. Newbigging "would be willing to pro-"mote an Association of Gas Managers for the United "Kingdom." Mr. Newbigging was asked if he would be prepared to meet in Manchester a number of the Managers from the surrounding towns, and take steps for the formation at once of such an Association. The object of the writer was to secure twenty assents—he announced that he was calling upon a few of the principal Yorkshire towns—and then to inform all those who were willing, so that they might arrange a meeting, at which he suggested that Mr. King, of Liverpool, would be agreeable to preside. This letter concludes: "It will no doubt "occur to you that, after defraying the expenses of your "ordinary meetings, a fund could be formed to provide "for widows and orphans and unfortunate members, &c.; "and with the aid of honorary members and donations, "an Institution would be founded worthy of your profes-"sion and an ornament to the country." In a postscript, Mr. Giles says: "I have no interest in the matter my-

"self, but really see how great a boon it would be to "Gas Managers all over the kingdom."

The twenty names were soon obtained, for less than three weeks later (on Nov. 14) we find Mr. Giles sending on a list, and inquiring whether Dec. 15, at 4 o'clock, in Manchester, would be a suitable time for the meeting. "Everyone I have named the matter to," adds the writer, "highly approves of it, and I feel sure the Association "will be a success." The list of names, which is additional to that of Mr. Newbigging, is as follows: Messrs. McFarlane, Manchester; Green, Preston; Leather, Burnley; Green, Accrington; Wood, Bury; Adamson, Leeds; Burgess, Huddersfield; Wilton, Halifax; Webster, Southport; Martin, Ormskirk; Frith, Runcorn, Forsythe, Sowerby Bridge; Whitaker, Brighouse; Chatterton, Elland; Blackledge, Chorley; Wright, Shipley; Wilkinson, Drighlington; Blackburn, Hebden Bridge; Hall, Salford; Woodall, Burslem.

Coal.

Important events in the coal industry took place last week outside of Parliament, for a very welcome change. When discussing the Coal Mines Bill a fortnight ago, we expressed an opinion that, at any rate in many of the districts, the owners would have been able to agree with the miners upon such adjustment of working times as would give them their reduction of hours without any loss of total earnings, which seemed inevitable with the imposition of a rigid and statutory seven-and-a-half hour day. Last week representatives of the owners and miners met, at the invitation of the former, who are reported to have made suggestions that the 45 hours' week permitted by the six days of seven-and-a-half hours each of the Coal Bill should be modified to a 90-hour fortnight. This would permit of such arrangement of shifts as would greatly modify the increases in production costs which appear to be unavoidable if the rigid shorter day is enforced.

It is believed that an agreement on these lines would be welcomed by the Government, who know, as well as the miners and everybody else, that the industry cannot economically face a decrease in working hours, and who no doubt realize that, the less balancing there is to do by means of the other provisions of the Bill, the better it will be. Anything that can be done to keep down production costs must, therefore, be welcomed by the home consumer, who is to be called upon to make up losses on export coal. This appears to be the only consolation the gas industry can draw from current happenings in the coal situation, for everything points to the conclusion of the Commons stages this week leaving the Bill substantially as it stands at present.

A Discourse on Pans.

A useful lecture on hotplate efficiencies and oven ventilation was given recently by Dr. H. T. Angus before the London and Southern District Junior Gas Association—see later pages. It was largely a discourse on pans, and as such was of more than usual interest, for the thermal capacity of different pans, while rarely quoted, has a distinct bearing on the efficiency of any hotplate burner. If, for example, in a standard test for efficiency 5 lbs. of water is used, then there is a possible 2 p.ct. difference in the results for pans of the same size but of different materials. Another factor which influences hotplate burner efficiencies is the diameter of the pan, in regard to which Dr. Angus put forward a significant argument and interesting figures. The area of flame contact has, as is well known, a marked bearing on heat transmission, and as this depends upon gas rate, all burners must be tested at their rated consumption for results to be in any way comparable.

From the foregoing, it is obvious that if hotplate burners are tested under slightly different conditions in various parts of the country, the efficiencies quoted, unless properly qualified, are not comparable. And why should all this qualification be necessary at a time which is supposed to be characterized by standardization and effective co-ordination? Uniformity of testing conditions ought to be the order of the day in practice as well as on paper. A further point is that a hotplate burner is only part of a composite cooking unit which comprises the cooking utensils themselves; and it is reasonable to suggest that the gas industry might with advantage pay much more attention to the merits and demerits of pans of various shapes, sizes, and materials.

The boiling burner itself, as Dr. Angus observed, cannot be considered as a unit, for if an 8-in. pan were suspended over a 3-in. burner, without any under support, the efficiency might rise 10 or 12 p.ct. above that when the pan rests normally on the top bars. Here, however, as in practically all questions which the gas industry has to consider in connection with the application of gaseous fuel, there is an optimum combination of thermal efficiency and practical convenience. Incidentally, apart from pan stability, it has to be borne in mind that a cooker hotplate is not designed for one pan alone.

During the ensuing discussion, one member of the Association roundly asserted that every gas appliance should have a flue. This may be an ideal, but we by no means regard it as an invariable necessity. A flue to an oven, for instance, vented into the outside air might result in a state of affairs far worse than the conditions which it was sought to improve. Oven and hotplate can be ventilated, but the ventilating means must be scientifically designed, and usually the expense is not warranted. If money is no object, however, those who are interested in how the cooker can be ventilated should seek permission to visit Chiltern Court, a new block of luxury flats in Baker Street. The oven is vented entirely separate from the hotplate, the hood over the latter having an individual flue. Should downdraught occur, then the hood acts as a baffler, and resistance is not set up in the oven flue. This installation, it must be remembered, is essentially for the well-to-do.

Leeds.

Speaking at the Southern Association luncheon towards the end of last week, Mr. C. S. Shapley gave to the minds of his hearers the keen edge of anticipation, by his references to the forthcoming meeting of the Institution of Gas Engineers in Leeds. No one but Mr. Shapley could tell to the full how hard Mr. Shapley has worked to make this meeting an outstanding success; but the imperfect knowledge which we possess is sufficient to assure us that his efforts are such as to put failure out of the question. An Institution meeting is not built in a day; and already the arrangements have proceeded far. Some of the papers are, Mr. Shapley stated, well in hand; and it is hoped to circulate all of them so much in advance of the meeting as to afford everyone an opportunity of taking part in the discussions. With the help of a Council and Secretary to whom Mr. Shapley paid generous tribute the programme is now being drawn up, and its issue may be looked for in the near future. The fixing of the annual meeting away from London must always throw additional responsibility upon the President and those associated with him. In London, with its unrivalled facilities of all kinds, meetings largely "make themselves." However, with the brilliant experience of Cardiff still so fresh in mind, Mr. Shapley rightly has no fear for the success of his own meeting in Leeds. All of us realize that his shoulders are broad enough to bear the responsibility. Mr. Shapley has drawn the veil slightly aside; and now we must wait patiently for the programme. When June arrives, all roads will lead to—no, we will not write it!

Commercial Sections.

The proceedings at two Association meetings are recorded in this issue of the "Journal;" and in connection with each there are set out the reports of two Commercial Sections. It is only natural to suppose that these reports are studied with interest, for there can be no doubting the fact that the Commercial Sections are potent for good. But to study the reports is not enough. The informal and confidential nature of the meetings renders them eminently suitable for the dissemination of useful information; and it is clear that such information is

made available in abundant measure. Yet in the case of each of the Associations there is one Section, at any rate, whose attendances have dropped far below what they should be. Under such conditions it is impossible to maintain maximum utility or maximum enthusiasm; and both are necessary to the best interests of the industry.

The Power of Advertisement.

Referring to the power of advertisement at the annual dinner of the National Advertising Benevolent Society, the President (Sir Gomer Berry) said that, if any one fact in industrial progress stood out more than another, it was the enormous growth in the quality and quantity of advertising. The skill and research of its practitioners had to-day transformed it into almost an exact science—a science which was pre-eminetly practical. For the "Eat more Fish" campaign the whole trade agreed to a levy of 1d. in the pound on the value of all the fish landed, the proceeds of the levy to be spent on advertising. Last year this levy totalled £40,000; and the revenue of British trawler-owners had been increased by no less than £1,100,000, while the sales of fish had gone up by 37,000 tons in one year.

Standardization of Gas Charging.

Yesterday say the completion of the alteration in the basis of gas charges which commenced ten years ago on the passing of the Gas Regulation Act. After April 1, the quantity of heat units—and not the volume of gas—supplied will be the basis of charge by all statutory gas authorities in Great Britain, with the exception of the small village undertakings which, until they develop further, will continue to charge as before.

Correspondence.

Oxide Purification.

Sir,—May we use your columns to express our appreciation of Mr. Hawthorn's paper on "Oxide Purification" published in your issue for March 26.

The author has rendered a great service to the gas industry by embarking upon investigations which throw light upon the considerable difference in the quality existing between the various kinds of purifying materials. It seems regrettable, however, that the activity of the oxides has not been expressed in values which would permit a ready comparison between the different materials.

We have examined many varieties of purifying materials. In many cases it has been found that only 10 p.ct. and even less of the total mass reacts with H_2S, while in a high-class product such as "Lux" 40 p.ct. and more is active. As purifying materials are not universally examined for efficiency, the difference in quality is not reflected by the price, which mostly bears no relation to the intrinsic value of the product.

In view of the appreciable difference in activity quoted above, it is not surprising to observe considerable variations in the efficiency of plants and the cost of purification. It is not uncommon to find among users of "Lux" that the material, after one fouling, contains 50 p.ct. of sulphur (D.B.), and can be discarded so that revivification outside the purifiers is entirely obviated. The oxide contains then the highest percentage of cyanides which are *completely* extracted from the gas when a suitable oxide is used. This point is not always realized, but deserves the utmost attention in view of the corrosive action of the hydrogen cyanide on services and meters.

Of course, the design of the plant, in particular its capacity, has an important bearing on the process efficiency. Owing to the wide difference in activity of oxides, the difference in the effective plant capacity may be much more than the 30 p.ct. given by Mr. Hawthorn. This is not only depending on the concentration of active oxide per unit volume of material, but is also influenced by the H_2S content of the gas. An increase in the latter always tends to accentuate differences between materials. It would seem that the time has come when the effect of the various factors in gas purification should be more fully understood, so that plant can be designed on scientific bases rather than from rule-of-thumb formulæ.

In regard to the regeneration of spent oxide, at one time we have inclined to the opinion that the repeated use of purifying material would be permissible provided a suitable process of regeneration was employed. Experience has shown, however, that the oxide deteriorates with regard to both its chemical and its physical properties. The addition of sawdust or a similar substance becomes essential, and causes all kinds of drawbacks, too well known to require enumerating. The alkalinity of the material is usually restored by the addition of lime, an admittedly inferior substitute for a water soluble alkali, which uniformly penetrates the whole mass of the material.

We have thus been forced to the conclusion that the regeneration of spent oxide can only lead to a product inferior to the best purifying materials available to-day at competitive prices, and seem to be supported in our views by the largest gas undertakings in the world, which, notwithstanding the facilities for the regeneration of spent oxide at their disposal, prefer the use of fresh material.

We hope that our observations will be of interest to your readers and form a contribution to the discussion of Mr. Hawthorn's paper, in which we were not privileged to participate.

E. George Hutchinson.

Thomas Duxbury & Co.,
Palace Chambers, Westminster, S.W. 1,
March 31, 1930.

Forthcoming Engagements.

April 5.—Scottish Junior Gas Association (Eastern District).—Meeting and visit to the Corporation Gas-Works, Perth.

April 5.—Manchester and District Junior Gas Association.—Annual Dinner. Paper by Mr. H. P. Lupton, B.Sc., A.I.C., on "Domestic Fuel by High-Temperature Carbonization."

April 10.—Society of British Gas Industries—Council Meeting.

April 11.—North British Association of Gas Managers.—Spring Meeting at Helensburgh.

April 11.—British Commercial Gas Association.—Annual Meeting of Salesmen's Circles, Caxton Hall, Westminster, 10.30 a.m.

April 12.—Yorkshire Junior Gas Association.—Visit to Messrs. Low-Temperature Carbonisation, Ltd., Askern Main Works, Doncaster.

April 17.—Midland Junior Gas Association.—Meeting in the Council House, Birmingham. Paper by Mr. J. H. Willis, A.M.I.Mech.E., of the Waterless Gasholder Company, on "Waterless Gasholders."

April 23.—Southern Association of Gas Engineers and Managers (Eastern District).—Meeting at 28, Grosvenor Gardens, S.W. 1, 2.30 p.m.

April 25.—Institution of Chemical Engineers.—Meeting. Paper on "Screening and Grading as Applied to the Gas Industry," by Mr. T. H. Prater.

April 26.—Western Junior Gas Association.—President's Day. Visit to the Weston-super-Mare Gas-Works, and Annual Meeting.

April 28.—Wales and Monmouthshire Junior Gas Association.—Annual General Meeting at Newport.

May 2.—North of England Gas Managers' Association.—Annual General Meeting in Newcastle.

May 2.—British Commercial Gas Association.—Scottish District Conference, Ayr.

May 9.—Southern Association of Gas Engineers and Managers.—Visit to Eastbourne.

May 9.—British Commercial Gas Association.—Midlands District Conference, Malvern.

May 13.—British Commercial Gas Association.—Executive Committee Meeting, London, 2.30 p.m.

May 16.—Eastern Counties Gas Managers' Association.—Spring Meeting at Harwich.

May 16.—Society of British Gas Industries.—Annual General Meeting and Dinner, Hotel Metropole, London.

May 21.—British Commercial Gas Association.—General Committee Meeting, London, 2.30 p.m.

May 23.—British Commercial Gas Association.—Lancashire District Conference, Morecambe.

May 27.—National Gas Council.—Annual Meeting.

June 2-5.—Institution of Gas Engineers.—Annual Conference in Leeds.

Commercial and Industrial.

Stock Market Report.

[For Stock and Share List, see later page.]

A slight check to the recent upward rush of prices took place on the Stock Exchange last week. This was attributable, however, largely to profit-taking, and no serious reduction in prices is foreshadowed.

Gas stocks and shares were again in demand, and there were more buyers and sellers, as is evidenced by the number of stocks which increased in value. The principal movement took place in the Imperial Continental capital stock which gained 25 points to 380, and a large volume of business was recorded. There are rumours that this price will increase still further. All the Gas Light and Coke Company's stocks were marked up, the £1 units by 1s. to 19s. 1½d., which price, having regard to the circumstances we mentioned last week, is more nearly approaching its true value. The Brighton 6 p.ct. and 5 p.ct. stocks recovered the 2 points *ex* div. reduction, and the Croydon maximum dividend stock advanced a further 1 point to 84½.

A purchase of Liverpool 5 p.ct. ordinary, now standing at 90 on the local exchange, is well worth consideration. A dividend of 6 p.ct. has been paid for the past two years, and at this rate the yield at the current price is £6 13s. 4d. p.ct. Another stock which is priced rather low at the present time is the Uxbridge 5 p.ct. This Company has been steadily increasing its rate of dividend for the past four years; and on the rate paid for 1929 (7 p.ct.), the return at the price of 96½ is £7 5s. 1d. p.ct. Among debentures, the Primitiva Company's 4 p.ct. (1911) and 4 p.ct. consolidated rose 4 points to 82½.

Coal Markets.

Business continues disappointingly quiet on all the markets, and political and industrial uncertainties are adding to the effect of the exceptionally mild winter. In the North-East Coast, steam coals have been fairly well maintained by one or two successes in tendering for Continental contracts, but gas coals are very quiet indeed. Wear special qualities are barely steady at 16s. 9d., and bests are quoted at 16s. f.o.b. Seconds are nominally 14s., but for many brands this can be discounted. Durham coking sorts have been fairly steady up to 14s. 6d. for best qualities, but forward business is very slow.

The position in Yorkshire shows no improvement, and, in spite of the easier tendency in values, inquiry shows no activity. The approximate official export price of screened gas from Yorkshire ports is 15s. 9d. to 16s. 6d. f.o.b., and values generally show a decrease of 3d. to 1s. a ton.

Gas coke trade is quiet all round, though 21s. is still maintained as the price in most quarters.

Trade Notes.

Metropolitan-Vickers Electrical Company, Ltd.

This firm have forwarded their "Girl" Calendar for 1930-31. This time the subject is Miss Helen Gilliland; and we think she will prove as popular as her fifteen predecessors.

Owing to the need for increased accommodation, the Metropolitan-Vickers Electrical Company, Ltd., have had to take new premises in Leeds. The address of the new office is Permanent House, The Headrow, Leeds. Telephone Nos., Leeds 20444 and 20445. Telegraphic address, "Multiphase, Leeds."

Exhauster Conversions at Belfast.

On three occasions in the last six years old Gwynne exhausters of the two-blade type in the Belfast Gas-Works have been converted to the Waller four-blade type, and the conversion has proved very satisfactory. The Manager has now recommended that the fourth and last machine of the two-blade type should be similarly dealt with. Messrs. Geo. Waller & Son have undertaken to carry out the work.

Drakes Verticals for Colne Gas-Works.

At a meeting of the Colne Town Council on Wednesday last, the Sub-Committee of the Gas and Lighting Committee unanimously recommended that the tender of Messrs. Drakes, Ltd., of Halifax, amounting to £30,000, be accepted for the installation of sixteen vertical retorts and machinery in connection therewith to the specification of the Gas Engineer; that application be made to the Ministry of Health for sanction to borrow this sum; and that application be made to the Unemployment Grants Committee for Government financial assistance towards the cost.

Success of the "Centriflovane" Grit Catcher.

The Belfast Gas-Works Manager (Mr. J. D. Smith) has reported very favourable, after a year's trial, on a "Centriflovane" patent grit catcher which has been used in connection with one of the water gas plants. The plant has effected economies which would more than repay the initial cost in the first year. Being desirous of equipping three additional plants with a similar type of grit catcher, he asked the Tipton Tub and Tube Company, Ltd., of Tipton, the sole makers and patentees of the plant, to quote for three catchers. Their quotation to supply these has been received and on his recommendation has been accepted.

Current Sales of Gas Products.

The London Market for Tar, Tar Products, and Sulphate.

London, *March* 31.

The prices for tar products remain unchanged.

Creosote for export is 6d. to 6¼d. per gallon f.o.b.

Pitch is 47s. 6d. per ton f.o.b.

Pure toluole is 2s. 5d. to 2s. 6d.; solvent naphtha, 95/160, about 1s. 5d.; pure benzole, about 1s. 11d.; and pyridine bases, 3s. 9d.—all per gallon.

Tar Products in the Provinces.

March 31.

Markets for tar products generally are quiet.

Pitch.—The principal manufacturers are asking 47s. 6d. a ton, and while very small parcels may be sold at under this figure no further large quantity could be purchased.

Creosote.—The market is quiet. Shipments are proceeding; but there is not very much business doing.

Water-white products are very firm in anticipation that they may be affected by the Budget.

The average prices of gas-works products during the week were: Gas-works tar, 21s. to 26s.; Pitch—East Coast, 46s. f.o.b. West Coast (f.a.s.)—Manchester, 40s. 6d. to 41s.; Liverpool, 44s. to 45s.; Clyde, 44s. to 45s. Toluole, naked, North, 1s. 7¼d. to 1s. 8¼d. Coal-tar crude naphtha, in bulk, North, 9d. to 10d. Solvent naphtha, naked, North, 1s. 3d. to 1s. 3½d. Heavy naphtha, North, 1s. to 1s. 0½d. Creosote, in bulk, North, liquid and salty, 3½d. to 3¾d.; low-gravity, 1¼d. to 1½d.; Scotland, 3½d. to 3¾d. Heavy oils, in bulk, North, 5½d. to 6d. Carbolic acid, 60's, 2s. 4d. to 2s. 5d. prompt. Naphthalene, £12 to £14. Salts, £5 to £5 10s., bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.ct., purely nominal; "B" quality, unsaleable.

Tar Products in Scotland.

Glasgow, *March* 29.

Refined tar for road-making is being purchased in fair quantities for forward delivery, but other products are quiet. Prices generally remain steady.

Pitch.—It is not anticipated that during the summer months there will be any change in values which remain nominal at 47s. 6d. to 50s. per ton f.a.s. Glasgow for export, and about 50s. to 52s. 6d. per ton for home.

Tar is in good demand at 4d. to 4¼d. per gallon in buyers' packages at makers' works.

Creosote remains extremely quiet with prices easy. B.E.S.A. specification is 3¼d. to 4d. per gallon; low gravity, 3d. to 3¼d. per gallon; neutral oil, 3d. to 3¼d. per gallon—all f.o.r. works.

Cresylic is scarce for prompt delivery, and prices are steady. Pale 97/99 p.ct. is 1s. 8¾d. to 1s. 9¾d. per gallon; dark 97/99 p.ct., 1s. 7¼d. to 1s. 8¼d. per gallon; pale 99/100 p.ct., 1s. 11½d. to 2s. 0½d. per gallon—all at makers' works.

Crude naphtha is 5d. to 5¼d. per gallon f.o.r. works.

Solvent naphtha continues dull, and prices are easy. 90/160 is 1s. 2¼d. to 1s. 3¼d. per gallon and 90/190 is 1s. to 1s. 1d. per gallon.

Motor benzole is being sold at 1s. 6d. to 1s. 6½d. per gallon *ex* works in bulk.

Pyridines are very quiet. 90/140 is 4s. 3d. to 4s. 6d. per gallon; 90/160, 3s. 3d. to 3s. 6d. per gallon; 90/180, 2s. 6d. to 2s. 9d. per gallon; and 90/220, about 1s. 6d. to 2s. per gallon.

Benzole Prices.

The following are considered to be the market prices at the present time:

	s. d.	s. d.	
Crude benzole . . .	0 10	to 0 11	per gallon at works
Motor ,, . . .	1 5½	,, 1 6½	,, ,, ,,
Pure ,, . . .	1 10	,, 1 11	,, ,, ,,

Contracts Open.

Carbonizing Plant Extension.

The Gas and Water Committee of the Goole Urban District Council invite tenders for the extension of their carbonizing plant. [See advert. on p. 50.]

Coal.

The Directors of the Matlock and District Gas Company invite tenders for the supply of coal. [See advert. on p. 50.]

Naphthalene Washing and Gas Drying Plant.

The Gas and Water Committee of the Goole Urban District Council invite tenders for naphthalene washing and gas drying plant. [See advert. on p. 50.]

Station Governor and Connections.

The Malvern Urban District Council Gas Department invite tenders for the supply of station governor and connections. [See advert. on p. 50.]

In To-Day's "Journal."

Manchester District Institution of Gas Engineers.

A full report of the Diamond Jubilee meeting and celebration of the Institution is published. The speakers at the luncheon, at which about 220 were present, included Mr. W. T. Kelly, J.P., M.P., Sir David Milne-Watson, D.L., LL.D., Mr. W. J. Smith, B.Sc., whose Presidential Address was published in our columns last week, and Sir Arthur Duckham, K.C.B., G.B.E. Sir David said that the gas industry looked upon co-partnership as an act of grace, something superimposed upon wages—not a factor of decrease.

* * * *

Hotplate Efficiencies and Oven Ventilation.

Dr. H. T. Angus, of the Parkinson Stove Company, has some important observations to make on this practical question. His paper before the London and Southern District Junior Gas Association appears, together with a report of the discussion. Dr. Angus remarks that the same burner will give appreciably different thermal efficiencies (1) with pans of different sizes and types; (2) with different gas consumptions; and (3) with different top bars. Dealing with these in order, the effect of using pans of different sizes is very marked, the chief causes being (*a*) the different thermal capacities, and (*b*) the different areas exposed to the hot gases. Thermal capacity of the pan, he says, while rarely quoted, is an important factor. The question of flues for ovens was broached during the discussion, and this matter is referred to in our editorial columns.

* * * *

Smoke Prevention in Sheffield.

The question of smoke abatement has for some time been the subject of consideration by a Smoke Abatement Research Committee comprising Associations representing various Sheffield steel trades. It was agreed by this Committee that the first step towards an investigation of the problem would be to collect and collate information in the hands of individual manufacturers in Sheffield with regard to methods that have been developed for smoke abatement. For a number of reasons it was desirable that this should be done by an independent authority; and, by arrangement with the National Federation of Iron and Steel Manufacturers, two Fuel Officers of that organization were temporarily placed at the disposal of the Research Committee. A report has recently been issued by these observers, Mr. F. J. Bailey and Mr. E. C. Evans.

Gas at Olympia.

There is a description, illustrated by many photographs, of the exhibits at the "Daily Mail" Ideal Home Exhibition likely to be of interest to our readers. The London Gas Exhibit is a centre of attraction. The South Metropolitan Gas Company were entrusted with the design and equipment of the stand, which comprises an artistically furnished and decorated series of model rooms round a central hall.

* * * *

Southern Association of Gas Engineers and Managers.

The annual meeting of the Association was held last Friday, when Mr. Frank H. Jones delivered his Presidential Address, published to-day. In this he said: I think that one of the most important duties of the older members of an industry is to see that there are people coming along trained by themselves not merely slavishly to carry on past ways and traditions, but to see that every opportunity is taken for advancing the industry. This can only be done by men of experience getting younger people of good education and intelligence, and training them to be the future heads of departments and undertakings. This, I think, is probably one of the greatest duties an older man owes to the industry. As to attracting the right type of man to the industry, I think that latterly there has been a great improvement; but there is still a great deal of room, in my opinion, for us all to see that other industries, and especially our competitors, do not get hold of all the best types of young people.

* * * *

Fine Example of Street Lighting by Gas.

There is a photograph of the gas-lighted section of Lewisham High Street. It is an experimental installation, and the tests, which are being made by the Lewisham Borough Council, have been undertaken in order to enable a decision to be taken on the relative values of gas and electricity for street illumination. The South Metropolitan Gas Company and the South Metropolitan Electric Light and Power Company were invited to equip a mile of the High Street, which lies on the main road from London to Hastings, with the best possible types of their respective systems. Members of the Works and Highways Committee of the Lewisham Borough Council formally inspected the lighting area on March 27, and their decision will shortly be reported to the Council for consideration.

Personal.

Mr. S. E. Whitehead, B.Sc. (Eng.), who has been appointed Chief Engineer to the Southampton Gas Company, after eleven years with the Portsmouth Gas Company as Assistant Engineer, received the hearty congratulations of his Portsmouth colleagues at a social gathering held on March 28, when a gold wristlet watch and a handsome silver cigarette box were presented to him by Mr. T. Carmichael, Chief Engineer at Portsmouth, on behalf of the staff. Mr. Carmichael expressed his pleasure that Mr. Whitehead had secured such a responsible position, and said that Southampton were to be congratulated upon getting such a man to fill it. All Mr. Whitehead's days had been spent in the gas industry, and he had been with the Portsmouth Company during their most prosperous years. Nobody could have wished for a better assistant, and he was sure that in his new appointment Mr. Whitehead would "take his coat off" and set about improving the figures. Mr. E. T. Stewart (Accountant), Mr. D. T. Marwick (Chairman of the Social Club), Mr. C. B. Cassell (late Chief Clerk to Mr. Carmichael), Mr. A. H. Mills (Superintendent at the Flathouse Works), and Mr. A. J. Garward (Fitting and Lighting Department) joined in the expressions of good wishes.

Obituary.

NORMAN SIMPSON COX.

The death occurred at Sunderland on Saturday last of Mr. Norman Simpson Cox, Secretary of the Sunderland Gas Company since 1909. Mr. Cox, who was 52 years of age, was taken ill with appendicitis on the previous Tuesday, and was operated on in Sunderland Infirmary, but complications set in. Mr. Cox's father, the late Mr. John H. Cox, was Secretary of the Sunderland Gas Company for sixty years, and it was upon his death in 1909 that Mr. Norman Cox succeeded to the position. For the last eighteen months deceased had also been a Director of the Company. He took a leading part in the rapid development of the Company's business. He was the Secretary, and a former President, of the North of England Gas Managers' Association. Mr. Cox was, too, a Director of the Sunderland and South Shields Water Company. He was educated at Repton School and at Armstrong College, Newcastle, and in his youth was a prominent Rugby player, playing three-quarter for the Sunderland and Durham County Clubs, and being capped for England against Scotland in 1901. He leaves a widow and four sons.

J. W. SLACK.

Mr. J. W. Slack, Vice-Chairman and Managing Director of Messrs. Richmonds Gas Stove Company, Ltd., and a Director of Radiation, Ltd., died at his home at "Wardleys," Latchford, Warrington, on Saturday afternoon last, March 29, in his seventy-fourth year.

Mr. Slack, who was a Lancashire man, started his long business career in 1874 with the Ashton-under-Lyne Gas Company. During his service of eighteen years he became Secretary to the Company, and in 1892 he was appointed Secretary to the Tunbridge Wells Gas Company. Four years later he was approached by the late Mr. E. W. T. Richmond, and became the South of England representative of Messrs. Richmond & Co., Ltd. (as the firm was then known). In 1902 he was made Secretary to the Company, whose offices were then in London, and in 1904 he returned to his native county of Lancashire, when the firm's secretarial offices were transferred to Warrington. In 1916 he was appointed Managing Director to the Company. His whole life, therefore, was spent in connection with the industry.

In addition to the responsible position he held with Richmonds Gas Stove Company, he took a great interest in the work of the Chartered Institute of Secretaries, and in 1924 was elected President of the Society, and had a very busy year of office. He was a Freemason of long standing and of London rank.

He celebrated his Golden Wedding in April last year, and we are sure that the sympathies of the readers of the "Journal" will go out to his widow and family.

The funeral took place on Tuesday last at Hill Cliff Cemetery, Warrington.

XUM

Topical Items.

Evening Star Lodge, No. 1719.

Installation Meeting.

The Installation Meeting of the Evening Star Lodge, No. 1719, for the year 1930 was held at Freemasons' Hall, Great Queen Street, London, on Wednesday last, the Worshipful Master, W.Bro. James W. Foreman, occupying the chair at the commencement of the proceedings. He was succeeded by Bro. J. A. Brentall, Master Elect, who subsequently appointed and installed the officers for the year 1930-1931, as follows:

I.P.M.	W.Bro. James W. Foreman, P.M.
S.W.	W.Bro. A. B. Potterton
J.W.	W.Bro. T. F. C. Potterton
Chaplain	W.Bro. Alfred H. Henry, P.M.
Treasurer	W.Bro. A. E. Croager, P.M., P.P.G.D. (Kent)
Secretary	W.Bro. Rae P. Normand, P.M.
Director of Ceremonies	W.Bro. Arthur L. Croager, P.M.
S.D.	Bro. W. H. Warren
J.D.	Bro. W. F. Broadberry
Organist	Bro. J. Waldron Swan
Assistant Secretary	Bro. E. J. Fussell
I.G.	Bro. G. D. Bidwell
Stewards	W.Bro. Reg. W. Foster, L.R. Bro. A. E. Brooks W.Bro. W. A. Scott, L.R. Bro. Stephen Hay
Tyler	W.Bro. R. G. Goddard

Joint Meeting of Juniors in Manchester.

The Annual Joint Meeting of the Manchester and District Junior Gas Association and the Yorkshire Junior Gas Association took place on March 22 at Messrs. West's Gas Improvement Company, Ltd., Manchester, the attendance being a record one.

The party of over 180 were received in the entrance hall of the General Offices of the Company by Alderman F. J. West, C.B.E., J.P., M.Inst.C.E., M.I.Mech.E., Mr. E. West, and several members of the technical staff, who later acted as guides round the extensive works. Luncheon was served in the large canteen.

The members of the Associations were shown the production department, in which the output of the works, supplies for outside sources, and progress of construction on the sites of various installations are regulated and recorded by means of charts, &c. The extensive drawing offices, laboratory, &c., were inspected; and progress stores, machine shops, drop-forging department, smithy, and structural steel department, presses, and mouthpiece shops came in for general admiration. The works cover an area of four acres; the pay roll of the Company covers an average of over a thousand workmen; the annual capacity of the works is approximately 4500 tons of structural steelwork and 4000 tons of machine parts.

Mr. H. C. Applebee (Manchester President) moved a vote of thanks to the firm, and welcomed the members of the Yorkshire Junior Gas Association. He complimented the firm upon their organization, which he considered was a special feature of their works.

Mr. F. Firth (Yorkshire President) seconded the vote of thanks.

Alderman F. J. West, J.P., replied on behalf of the firm. He gave one or two interesting details of his various tours, and spoke about the general recognition throughout the world of the value of the work of various associations connected with the gas industry, mentioning that in some cases men had travelled hundreds of miles to attend a meeting of a gas association.

Visit to the Manchester "City Justices" Gas Meter Testing Station.

After leaving Messrs. West's, the party were taken by special trams to the above-mentioned meter testing station. Here they were received by Mr. H. N. Barrow, J.P., Chairman of the Committee, and Mr. Winterbottom, Chief Meter Inspector. Those present took great interest in the station, which is said to be the finest in the country.

The visitors were also shown the Manchester Fire Station, which is incorporated in the same block of buildings. Here the method of receiving calls, &c., were fully explained, and a mock turn-out was arranged.

Mr. J. W. Horwill (Bradford) moved, and Mr. C. H. Bamber, B.Sc. (Bolton), seconded, a vote of thanks to the Chairman of the City Justices.

Midland Juniors Visit the Works of the Bryan-Donkin Company, Chesterfield.

Members of the Midland Junior Gas Association journeyed to Chesterfield on Saturday, March 15, to visit the works of the Bryan-Donkin Company, Ltd. The visitors were received by the Managing Director, Alderman George Clarke, J.P.

The firm can trace their history back to 1803, when Bryan Donkin, F.R.S., founded a Company for the manufacture of paper machinery. The founder was associated with many eminent engineers of that day, among them being Murdoch, Boulton, and Watt. It was not until 1847, however, that the firm entered the gas industry, when they introduced their rack and pinion gas valve and the rotary exhauster, the latter being superseded in 1877 by the Beale exhauster, which is still manufactured. More recently the Rateau fan and exhauster have been manufactured in large numbers.

The works cover a site of about fourteen acres, and are equipped with modern machinery and many labour-saving devices.

Following the inspection, the visitors were entertained at luncheon at the Station Hotel, when a vote of thanks to the firm and those members of the staff who had helped to make the visit such an enjoyable one was proposed by the President (Mr. A. R. Myhill) and seconded by Mr. F. C. Pykett (Coventry).

In acknowledging the vote of thanks, Alderman Clarke briefly outlined the history of the firm, and paid a tribute to the genius of its founder.

After lunch, a number of the members of the Association inspected the Works of the Corporation Gas Department, at the invitation of the Engineer, Mr. Harold Davies.

Mr. J. Sandon Stubbs on "Gas Service."

Address to Liverpool Rotarians.

The impression that gas companies introduced charging by the therm in order "to derive still further shekels from the poor public" was contradicted by Mr. J. Sandon Stubbs, Secretary and Treasurer of the Liverpool Gas Company, in an address on "Gas Service," on March 20, to his fellow-members of the Liverpool Rotary Club.

The system, he said, was instituted by Parliament in the interests of consumers, the charge now being for the quantity of heat value. The heat value of a therm of Liverpool gas, which cost 7·4d., was sufficient to raise 475,000 lbs. of water 1° Fahr. Twenty-nine units of electricity contained the heat value of one therm of gas.

By economies and increased consumption the Liverpool Gas Company had been able to reduce the price of gas to a figure which, under the Act, would allow them to pay a dividend of 8½ p.ct., but the Directors felt it was better to pay a reasonable dividend of 6 p.ct., and use the balance for the benefit of the consumer.

Voluntary Work by Employees.

Mr. Stubbs referred to the success of the co-partnership scheme, and said the Gas Company had no labour troubles. Their men frequently turned out voluntarily in their leisure hours to help consumers, and the first the Company heard of it was when a letter of thanks arrived. The employees held over £70,000 of the Company's ordinary stock, and the cash standing to their credit in the savings accounts was over £60,000.

He sometimes wondered what would have been the position of trade if all manufacturing concerns had been run on the lines of the Liverpool Gas Undertaking, and instead of paying bonus shares and huge dividends had been content to pay a reasonable dividend and hold reasonable reserves, devoting the surpluses made in boom years to efficient equipment, and reduction in price, thus increasing the demand at home and abroad.

Reducing the Smoke Evil.

The first prepayment gas meter in this country was fixed at 9, Grasmere Street, Liverpool, in 1890, and to-day there were more than 118,000 in use in Liverpool. The Company carbonized about 1000 tons of coal a day, and any increase in coal prices was bound to be reflected in the price of gas.

The thousands of gas cookers and gas fires in Liverpool were helping to reduce the smoke evil, and, in addition, the Gas Company had now set apart one of their works for the manufacture of a smokeless, solid fuel—"Dryco." The demand already exceeded the supply, and although the production of this fuel meant no greater profit, the Directors felt they should do everything possible to deal with smoke.

Co-Operation between Institution of Municipal Engineers and Institution of Gas Engineers.

Members of the Institution of Municipal and County Engineers, who visited Aldershot on March 19 to hold a business conference, were welcomed by the Mayor of Aldershot (Councillor R. W. Edwards, J.P.), who is Chairman and Managing Director of the Aldershot Gas, Water, and District Lighting Company.

In supporting the toast of "The Borough of Aldershot," at a subsequent luncheon at Farnborough, Mr. Wilkinson, of Willesden, referred to the Mayor's connection with the gas industry. He was glad to know that the Institution of Municipal and County Engineers and the Institution of Gas Engineers would work together in the future with regard to the use of tar on roads. He used something like 200,000 gallons of tar a year, and had faith in tar, and so had many other engineers.

Retirement of Mr. W. Gosling.

On Friday, March 21, a complimentary dinner was given at the Holborn Restaurant by the senior members of the Engineering Staff of the South Suburban Gas Company, to Mr. and Mrs. W. Gosling, on the occasion of Mr. W. Gosling's retirement after 39 years' service with the Company.

The chair was taken by Mr. John Terrace, M.Inst.C.E., Chief Engineer; and among those present were Miss Terrace, Mr. F. G. Gorman, Assoc.M.Inst.C.E., Deputy Engineer, and Mrs. Gorman, Mr. A. V. Hendrickson, F.I.C., Chief Chemist, and Mrs. Hendrickson, Mr. B. P. Bezant and Mrs. Bezant, Mr. E. G. Dickinson and Mrs. Dickinson, Mr. W. Judd and Mrs. Judd, Mr. J. A. Brentnall and Mrs. Brentnall, Mr. R. Rix and Mrs. Rix, Mr. H. C. Glass and Mrs. Glass, Mr. J. A. Rudling and Mrs. Rudling.

After the toast to the King, the Chairman proposed the toast of "Our Guest." He referred in terms of praise to Mr. Gosling's long and loyal service to the Company, and paid a tribute to Mr. Gosling's social activities on behalf of the Company, and to the keen interest he took in public affairs. Mr. Gosling, he said, had served for a considerable period on the Bromley Rural District Council, the Bromley Board of Guardians, and St. Paul's Cray Parish Council. The toast was ably seconded by Mr. Gorman, and supported by Mr. Bezant and Mr. Judd.

Mr. Gosling, in responding, expressed his sincere thanks to his colleagues for the honour they had done him in inviting him to the farewell dinner. He stated how very much he had appreciated working under a Chief such as Mr. Terrace, who had always been most sympathetic, and willing to give advice, help, and encouragement.

The toast to "The Ladies" was proposed by Mr. Hendrickson, and responded to by Mrs. Gorman and Mrs. Bezant.

A vote of thanks to the Chair was proposed by Mr. Dickinson and seconded by Mr. Brentnall.

The singing of "Auld Lang Syne" brought a very happy evening to a close.

Smoke Prevention in the Sheffield Steel Trades.

The passing of the Smoke Abatement Act of 1926 led to an intensified interest on the part of both public authorities and manufacturers in the possibilities of smoke prevention in industrial practice. In probably no branch of industry are the problems involved as complicated as in those branches of iron and steel manufacture comprised in the Sheffield steel trades.

The question has for some time been the subject of consideration by a Smoke Abatement Research Committee comprising Associations representing various Sheffield steel trades. It was agreed by this Committee that the first step towards an investigation of the problem would be to collect and collate information in the hands of individual manufacturers in Sheffield with regard to methods that have been developed for smoke abatement. For a number of reasons it was desirable that this should be done by an independent authority; and, by arrangement with the National Federation of Iron and Steel Manufacturers, two Fuel Officers of that organization were temporarily placed at the disposal of the Research Committee.

A report has recently been issued by these observers, Mr. F. J. Bailey and Mr. E. C. Evans; and from it the following extract will be of interest to our readers.

Gas-Fired Furnaces.

Considerable success has been achieved by the total gasification of the coal in separate producer plants and firing the furnaces with the producer gas. This makes it possible to achieve a continuous uniform supply of fuel to the furnace and thus increases the ability to obtain the control of furnace atmosphere necessary to smokeless operation. Unless great care is taken, however, both the pressure in the gas mains and the quality of the gas vary considerably, making it difficult to achieve the great delicacy necessary for the protection of the surfaces of special steels. In other words, the care in control is largely removed from the furnace operator, but the responsibility is at the same time diverted to the gas maker, and this fact must be fully realized if the quality of the work is not to be impaired. Moreover, producer gas-fired furnaces are considered not to be economic when the production is intermittent, which is an outstanding feature of the "jobbing" work typical of Sheffield. A further difficulty arises from the cleaning of gas mains, which must be burned out once a week. Thus an installation which is satisfactory and reasonably smokeless over the period of a week must emit quantities of soot over a considerable period at the end of that time, since no clean method of removing the accumulations from the gas mains appears to have been developed.

Coke Oven Gas Firing.

The most perfect control with the greatest flexibility in operation can be attained where gas of a constant quality is supplied at a constant pressure and temperature and is utilized in a properly designed furnace, the proportioning of gas and air being automatic. The nearest approach to this is town gas (coke oven gas), which is now being used increasingly for those heat treatment operations where the greatest care is necessary. A further advantage to be gained from the use of coke oven gas is that low-temperature operations which are normally responsible for heavy smoke emission are carried out smokelessly.

It is not possible at the present time to say precisely what will be the full field of application for coke oven gas, since the use of it has so far been restricted on the score of price. The Area Gas Supply Committee, which is at present investigating the problem of utilization of surplus coke oven gas, has under consideration a scheme whereby in the comparatively near future it is hoped to make available this gas to the works at a cost which may make it attractive.

It will be necessary, before this gas can be used to its full advantage, and contribute its full quota towards reducing the present smoke emission, to undertake a great deal of development work in order to adapt the furnace designs to the metallurgical operations involved. The opinion has been strongly expressed by the majority of the firms with whom the subject has been discussed that this can and will be done efficiently, since there is ample technical ability available in the industry.

Oil and electricity both have particular fields of application and specific advantages in addition to smokelessness, but in general they are ruled out on the score of cost, at least for anything other than small work in which the heating costs are only a small proportion of the over-all production costs, or where space is an all-important consideration.

Junior Institution of Engineers.—At the next meeting of the Junior Institution of Engineers, which will take place on Friday, April 11, in the Lecture Hall at 39, Victoria Street, Westminster, a paper is to be given on "Gas in Japan and the Far East," by Mr Walter T. Dunn, M.I.Mech.E., Founder and Past-Chairman of the Institution. In it the author will give an account of his visits to the gas-works of Japan and those at Singapore, Hong Kong, and Colombo.

Slough Stock Issue.—As will be seen from our advertisement columns, Messrs. A. & W. Richards, of 37, Walbrook, E.C. 4, are offering for sale by tender, on behalf of the Directors of the Slough Gas and Coke Company, £2000 5 p.ct. perpetual debenture stock at a minimum price of issue of £97 10s. per £100, yielding at that price £5 2s. 7d. p.ct.; also £30,000 ordinary stock ranking for a standard dividend of 5 p.ct. subject to the sliding scale. Tenders should be received not later than 11 o'clock a.m. on Monday, April 14.

Adaptation of Gas to Street Lighting.—Mr. B. Thorpe, Chief Chemist to the Huddersfield Gas Department, informs us that the figures of mean illumination for the installations of lighting graphed in figs. 1, 2, 3, and 4 of his paper on the "Adaptation of Gas to Street Lighting" ("Journal," March 12, p. 709 *et seq.*) should read: Fig. 1 shows a mean illumination of 0·0443 foot-candle; fig. 2 a mean illumination of 0·203 foot-candle; fig. 3 a mean illumination of 1·115 foot-candles; and fig. 4 a mean illumination of 0·2324 foot-candle with refractors, and 0·1738 foot-candle without refractors.

Nottingham's Gas Supply.—On p. 814 of the "Journal" last week, it was erroneously stated that gas from a low-temperature carbonizing plant was to be utilized to augment Nottingham's gas supply. The true facts of the case are that there is belonging to the Notts and Derby Coke and By-Product Company, Ltd., a modern high-temperature silica-wall coke oven plant at Pinxton, which, it is arranged, will supply 2 million c.ft. of gas per day to the Basford Works of the Nottingham Gas Department. The plant at Pinxton has just been reconstructed, and a battery of 20 Coppée ovens installed. A new gas main has to be laid between Nottingham and Pinxton for the conveyance of this gas, and we understand that it will be the longest coke oven gas main in the country.

Diamond Jubilee Celebration of the Manchester District Institution of Gas Engineers.

The Manchester District Institution of Gas Engineers celebrated their Diamond Jubilee on Tuesday, March 25, at the Midland Hotel, Manchester. There was a very good attendance at the sixtieth annual meeting held in the morning. Mr. W. B. McLusky (Halifax) presided at the opening of the proceedings.

Mr. Harold Pickles, A.M.I.C.E., F.C.S., Engineer and Manager, Gas-Works, Morley, was inducted as a new member. The annual report and statement of accounts were adopted.

Lancashire Commercial Section.

The adoption of the report of the Lancashire Commercial Section was moved by Mr. H. R. S. Williams (Altrincham), who called attention to the fact that with 81 members on the books the highest attendance at any one meeting was 35, and the average attendance was 23. He said that, to get the best out of the Section, the members must attend; if they did not he did not see what they paid subscriptions for, because as a rule all they got was the coke return. Other subjects equally important were considered at the meetings, but did not come before members who were not present. The Committee wished to make the Section as helpful as possible, and that could only be done with the co-operation of all the members. During the year there had been many discussions about special uses to which gas was put, from heating and lighting of fowl houses to large industrial installations. Those discussions had been most helpful to members who had to deal with similar problems. A Constitution and Rules had been adopted. He believed this was the first Commercial Section to adopt full-dress rules to govern its work. In regard to tar prices, it was hoped that the bottom had been touched, and that the amalgamation of various co-operative tar schemes had paved the way to better prices throughout this part of the country. The Lancashire distillers' tar scheme should eventually be one of the largest in the country, and the results obtained ought to make it worth while.

Mr. W. J. Smith (Bolton) seconded the motion, and the report was agreed to.

Yorkshire Commercial Section.

Mr. E. H. Hudson (Normanton) moved the adoption of the report of the Yorkshire Commercial Section. He reminded the members that a year ago, in order to make the Sections efficient and as advantageous as they ought to be, he made a strong appeal for loyalty. How that appeal was received by the Lancashire men he did not know, but in Yorkshire it was effective, and never before had the work of the Section been so profitable as it was last year. An export selling organization had been established, all their coke had been sold to one organization, and that had been much to the advantage of everybody who had coke for shipment. Another matter he would mention was the Area Gas Supply Inquiry. This involved a good deal of work by the members of both Sections, and he hoped the report would show that their labours had not been in vain, and that they had succeeded to a great extent in safeguarding the interests of the gas industry in Lancashire and Yorkshire. There was great need for co-operation, and he advised that friendly joint meetings of the two Sections be held.

Mr. R. Watson (Doncaster) seconded the motion, and it was agreed to unanimously.

Letters of Congratulation.

Mr. J. Bridge (Hon. Secretary) said he had received letters of apology for non-attendance from Mr. T. Banbury Ball, the oldest Past-President of the Institution, from many of the members, and from the Presidents and Secretaries of other District Associations. There were also many letters of congratulation. Mr. David Vass (Perth), the President of the Waverley Association, wrote as follows: "As President of the oldest District Association, I have pleasure in congratulating you on your Institution having reached its Diamond Jubilee, and wish you a successful meeting." While Mr. Vass was quite correct in saying the Waverley Association was the oldest District Association, it was equally true that the Manchester District Institution was the senior of the English District Institutions or Associations. Mr. John Booth, of Southport, was the only member of the Institution who was present at the first annual meeting sixty years ago. It had been hoped to have the pleasure of Mr. Booth's presence at the luncheon celebrating the Diamond Jubilee, but he had replied that his health prevented him from undertaking such a public function. The fact that he was one of the founders of the Institution gave him sincere pleasure. Its steady and successful progress was worthy of record. Although absent, his spirit would be with them, and he wished them all a happy and enjoyable time. Mr. C. S. Shapley (Leeds), the President of the Institution of Gas Engineers, wrote that a very important Gas Committee meeting made it impossible for him to attend. He sincerely hoped everything would go off most satisfactorily, and that the new President would have a very successful year.

The President suggested that the Secretary should write a letter to Mr. Booth on behalf of the Institution. The suggestion was agreed to.

The Committee's Recommendations.

The President said the first recommendation made by the Committee was that Mr. Charles Wood, O.B.E., F.C.S., of Bradford, be elected an Hon. Member. With very great pleasure, he moved the adoption of that recommendation. Mr. Wood was still a young man; and the members were glad to know that his health was now completely restored. He had done useful work for the Institution and for the industry generally, and to the offices he had filled he brought as much honour as those offices brought to him. An Institution was fortunate when the men it called in to its service brought with them something that was worthy of it; and Mr. Wood, in doing himself justice, conferred benefit upon the Institution.

The motion was seconded by Mr. Hudson (Normanton). He said the Institution had never had a worthier member, nor a better President. [Applause.]

The motion was carried unanimously.

Mr. Wood said he thanked the members sincerely for an honour which came to him unexpectedly. The President spoke of him as a young man. Well, he was 66 years of age. He had always had a particular affection for the Institution. When it was founded his father's uncle was President for (he thought) the first two years, and he was brought up to regard Manchester and the surrounding district as the most important part of the country. But he was born in a London gas-works, or adjoining it, and when he was elected to membership of the Institution he looked up the records to see whether he really was eligible. Somehow or other he was elected. He was then 22 years of age, and had since seen many changes. This summer it would be twenty years since he began to live in Yorkshire, and in that time he had learned quite a lot. He had learned that there were other parts of the country besides the Manchester district, that Yorkshire wool was better than Lancashire cotton, that the Yorkshire moors were much finer than the Lancashire moors, from a tourist's point of view, and, perhaps more important, Yorkshire gas-coke was superior to that of Lancashire. [Laughter.] In his little way he had tried to persuade other people that he was right there. [Renewed laughter.] He had never been quite satisfied with the name of the Institution; it seemed to him that Yorkshire was looked upon as a sort of suburb of Manchester, but they had had it so long that it would be a great pity to change it. There were many Yorkshire members who had done good work for the Institution.

Mr. G. S. Frith (Runcorn) moved that ten guineas be granted to the Benevolent Fund of the Institution of Gas Engineers. The motion was seconded by Mr. F. G. Shaw, and agreed to.

Mr. W. J. Smith (Bolton) was appointed the representative of the Institution on the Council of the Institution of Gas Engineers; Messrs. W. Buckley (Manchester) and W. B. McLusky (Halifax) were appointed representatives of the Institution on the Councils of the Lancashire and Yorkshire Junior Gas Associations respectively.

The New President.

The President said it was a great pleasure to induct into office as President his old friend Mr. W. J. Smith, of Bolton. In the gas industry the name of "Smith" was something to conjure with. Men bearing that name had distinguished themselves in the industry, and in particular Mr. Smith's family had done much more than the younger members realized. His father was one of the pioneers of the gas industry in Great Britain, and entered upon his duties in Bolton at a very critical period in the history of that great undertaking. He was a man of sound judgment, initiative, and ability. His work showed him to be possessed of great foresight. The members would see that their new President had inherited his father's capacity for critical examination, long-range planning, clear foresight, and sound judgment. An outstanding quality

was his "stick-at-itiveness." Some people believed that Carlyle said that genius was an infinite capacity for taking pains. This was an error; what Carlyle actually said was that genius was a tremendous capacity for taking trouble at the start. Mr. Smith had that quality. One advantage he had was that, while he enjoyed the benefits of a good home and suitable environment, he laid the foundations of his scientific attainments in the University of Manchester, and, coming at the end of a long line of great men, he was the first who brought with him to the Presidential office the distinction of having a Degree in Science. But his best biography was his work, which proved Mr. Smith to be one of the finest gas engineers in this country.

Mr. Smith was invested with the Presidential Badge and took the chair which Mr. McLusky vacated.

The PRESIDENT thanked Mr. McLusky for his kind words, and the members for the way in which they had received them. His first duty, he said, was a very pleasant one, because it was to propose a vote of thanks to Mr. McLusky for his excellent service as President during the year, and to ask him to accept as a token of their appreciation of it the Past-President's Medal. They knew him as an ardent worker in matters gas, and they admired his genial manner and his readiness to see the other man's point of view; and they were not surpised at the splendid effort he had made during his year of office. The Institution had honoured him by electing him to the Presidential Chair; Mr. McLusky equally honoured the Institution by the way in which he served it.

Mr. MCLUSKY said that, for whatever had been done during his term of office, credit should be given to the members, who had supported every effort he made. It ought to be the ambition of every industrial gas engineer in the area to work hard for the Institution and for the gas industry generally in Manchester and the surrounding districts.

PRESIDENTIAL ADDRESS.

The PRESIDENT then delivered his Address. This was published in the "JOURNAL" last week.

The PRESIDENT added that in 1925, prior to the alterations and extensions, when the plant was on full load the capital expenditure per 1000 c.ft. was 15s.; in 1929 it was 17s.; but with the plant on full load it would fall to 9s. 6d. In consequence gas could be reduced by 2d. per therm, if standing charges were taken into calculation. This pointed to the fact that greater hopes could be founded upon increased sales than upon any probable decrease in the cost of manufacture.

Mr. R. G. SHADBOLT moved that the thanks of the members be accorded to Mr. Smith for his address. He said it was fitting that such an address should be given when the Institution was celebrating its Diamond Jubilee. It was typical of the President, because it was thorough. Those who had known Mr. Smith for many years always looked upon him as a man who was thorough in every particular in regard to everything he took up. Recalling how many of Mr. Smith's predecessors had delivered inaugural addresses, one was tempted to try to gather from them the trend of things, the indications of progress, in the industry. It was really summed up in the facts disclosed in Mr. Smith's address in regard to Bolton itself

Mr. R. WATSON (Doncaster), in seconding the vote of thanks, said they all recognized the help which Mr. McLusky had given them so ably during the last twelve months, and they were sorry to lose his services as President; but the address they had heard must convince all that their new President had a capacity for service equal to that possessed by any of his predecessors. It was a practical illustration in a concise way of how works could be constructed; it was full of suggestions and hints. It was very gratifying to hear that Mr. Smith was conducting research work. They realized that in Mr. Smith they had a leader whom they could consult without hesitation upon any problem.

The PRESIDENT remarked that Mr. Shadbolt and Mr. Watson were both Past-Presidents, and he appreciated their remarks very highly

Alderman F. J. WEST, C.B.E., moved a vote of thanks to the officers and Committee of the Institution for their services during the year. He said that the Institution brought into its work an initiative which was reflected in the success and prosperity of the industry. There could be nothing more stimulating and helpful to a new President than the knowledge that he had behind him a progressive and helpful Council. In Mr. Bridge the Institution had a very keen and progressive Secretary. Another name which he would pick out for mention out of an excellent team was that of Mr. G. S. Frith, of Runcorn, who this year retired as ex-officio member of the Council. He had given to the Institution many years of service.

Mr. A. L. HOLTON (Manchester), seconding the resolution, remarked that the Jubilee Celebration must have been a very heavy strain upon the Secretary and the Council.

The PRESIDENT said he would add that Mr. Bridge was with him in Bolton many years, and none could wish for better service than he gave. Mr. McLusky must have found him a tower of strength.

Mr. G. S. FRITH (Runcorn) said he was proud of his sixteen years' service for the Institution.

Mr. BRIDGE observed that it had been a pleasure to carry out his secretarial duties during the past year. Especially he appreciated the way in which he was brought ino closer contact with Mr. McLusky. He expected this year would be quite as happy as any he had at Bolton.

Before the meeting closed the following telegram was received: "Chartered Institution of Gas Engineers sends cordial greetings and best wishes to Manchester Institution of Gas Engineers on the memorable occasion of its Jubilee.—Alexander."

LUNCHEON.

The company at the luncheon numbered about 220. Mr. W. J. SMITH, the President, occupied the chair.

The toast of "The King" was proposed by the President, and honoured with due observance.

Mr. W. T. KELLY, J.P., M.P., then proposed the toast of "The Gas Industry and the Manchester Institution of Gas Engineers." Mr. Kelly said that when he reflected upon the greatness of the gas industry, what it had accomplished in the past, and what there was for it to do in the future, he realized his inability to do justice to this toast. The Institution was celebrating its Diamond Jubilee. Recalling what had taken place in those sixty years, and the opportunities which had been allowed to pass, it seemed to him that, if those who had had control in the industry, as general managers or in other capacities, had carried out adequate propaganda, the world to-day would be hearing a very different story from that now told about the gas industry. He had tried to picture the little meeting at the Mitre Hotel, Manchester, in 1870, which was the origin of the Institution. If, knowing the importance of the industry, those men had forced the pace a little, probably there would not have been the complaints which one now heard with regard to the competition by another source of light, heat, and power. It was a long time before the advance was made from the flat-flame burner to something which gave much better street lighting. That improvement indicated what might have been done. He had never been able to understand why the gas industry allowed the supply of light, heat, and power to pass from its hands into those of another industry to the extent that had happened; but, things being what they were, he believed it would be to the advantage of the community that, with greater competition, there should be closer co-operation with the electricity supply undertakings. He knew a place where the gas undertaking and the electricity undertaking were under the same ownership, yet nowhere had he seen greater competition between those two industries, and it tended to the betterment of both. As a Manchester man, he was proud of the fact that the Manchester Institution was the Senior Institution of its kind. To-day there was in many people an inclination to be pessimistic about the prospects of gas undertakings. Personally he was not a pessimist; neither was he an optimist who sat down and waited for results. In his opinion the optimist ought to help to get those results, and bring them about quicker.

He would not take up time by quoting figures about the extent of the gas industry—they were well known to those present. There were hundreds of gas-works in the country; they represented the investment of an enormous amount of money; thousands of men were employed in them; thousands of families depended upon the weekly wages earned in them. During the last twenty or thirty years the industry had improved tremendously, but it was necessary to progress further, and greater opportunities should be given for the development of gas production. He had never been able to understand why those in charge of an important industrial service such as the supply of gas should be compelled to go to Parliament and get an Act passed before they could make a move. The whole position of the gas undertakings should be overhauled, and the harassing restrictions removed which compelled the Directors of gas undertakings to go to London for permission to carry out a scheme of development to do something at (say) Rochdale Road in Manchester.

THE GAS INDUSTRY GOING AHEAD.

Some people believed gas had had its day. They were wrong, and the obvious fact was that the industry had gone ahead despite difficulties and hampering restrictions. But there was need now for greater research work. He suggested there should be unity in that work, a common pool to which all would contribute and from which all would draw. Given that, he thought the industry would progress at a more rapid pace than it had done previously.

Speaking as one on the operative side of the industry, in his opinion the time had come to consider whether it would not be advantageous to the country as a whole if there was more co-operation between the various units engaged in the production and distribution and marketing of gas. Much was heard about the marketing of other products; more consideration should be given to the marketing of gas.

He coupled with the toast the names of Sir David Milne-Watson and Mr. W. J. Smith. He had met the former on many occasions. At one time there existed in regard to many undertakings a great fear of trade unions, but he did not suggest that fear was ever felt by Sir David. When, round about the war period, it was suggested it would be to the advantage of the gas industry that there should be closer combination for the purpose of dealing with wages and conditions, Sir David fell in with that suggestion, and gave much help at the first arbitration upon those matters. It was a satisfactory arbitration to the operatives because for the first time they were able to meet the representatives of the great gas undertakings collectively instead of in the "higgledy-piggledy" fashion which had previously been the practice. He remembered how surprised and pleased the

men's representatives were when, on arriving at the Court of Arbitration, they found that the case for the undertakings was to be presented by Parliamentary lawyers. There was nothing that leaders of the operatives loved more than having to deal with Parliamentary lawyers on such questions. But that experience had not been repeated. Sir David had played his part in endeavouring to make known that the time had come for a clearer understanding in regard to the conditions of industry, also in regard to co-partnership, which had a greater place in the gas industry than in any other industry. To those who favoured co-partnership, he would suggest that they should not attempt to do what was done by one company when he was endeavouring to secure an advance in wages; they sought to put a co-partnership scheme into operation in order to prevent an advance in wages. Co-partnership ought to mean something better than that. He believed in paying the highest wage possible, because the increased purchasing power of the workers would undoubtedly tend to the advantage of the country at large.

He must also express his appreciation of Mr. W. J. Smith, the newly-elected President of the Institution. All present knew that he had won by merit and capacity an honourable position in the industry.

The Good Work of Mr. Kelly.

Sir David Milne-Watson, D.L., LL.D., President of the National Gas Council, said that Mr. Kelly had spent much of his life in politics, but he also had practical experience of industry, and understood industrial problems. As a Member of Parliament he helped the gas industry greatly when the late Government was passing the Gas Regulation Act through the House of Commons. His assistance was of inestimable value. If his good offices had not been given that Act might never have been placed upon the statute book. While it did not give all the industry needed, they welcomed it as a first instalment. Then he would thank Mr. Kelly for the way in which he had spoken about the future of the industry.

They had met to celebrate the Diamond Jubilee of the Manchester Institution of Gas Engineers. In many respects that body had led the way in regard to district matters connected with the industry, and it had done things which could serve as models for the conduct of national affairs. It was a progressive Institution, and from time to time had altered its rules and regulations so as to make them applicable to new circumstances. It did not limit itself to gas engineers; gas-works managers were admitted into its Council as Honorary Members. That was a very important step to take, and it had helped to keep the Institution alive, and in contact with many things which otherwise would have been beyond its scope; in other words, it had adopted co-operation in all branches of engineering and management. The District Associations had not been locally exclusive, but had joined in national deliberations, and the nation owed to them a very great debt of gratitude for the assistance they had given to the industry.

Virtue of Competition.

In many ways the gas industry had been fighting an uphill battle. Unfortunately, an impression had got abroad that it had reached, or even passed, its zenith. Nothing was further from the truth. It was indeed an old industry, about 120 years old; but while it had gained experience and wisdom, it had not lost the vitality of youth. Of course, it suffered much from competition of all kinds. Personally he had no objection to competition. Properly treated, competition was stimulating; it helped one to work thoroughly.

Perhaps he was expected to say something about electricity, but he had no wish to touch upon debatable subjects. During the luncheon the Lord Mayor asked him about the respective merits of gas and electricity for lighting, &c., and he hoped he had answered his Lordship's conundrums satisfactorily. One thing he told him was that in London Pall Mall, Whitehall, Victoria Street, Oxford Street, and other principal streets were still lighted by gas as they were 117 years ago or more. Personally he thought there was room for both gas and electricity. Far be it from him to discourage the Chairmen of Electricity Committees in the Manchester district; but he did hope that in the council chamber fair play would be given to the gas industry. That was all they were going to ask from Parliament. Given fair play, they would fight their own battle and show what service they could render to the public.

He was proud of the relationship of the gas industry with labour. He remembered the arbitration to which Mr. Kelly alluded. The undertakings profited by the experience they gained then, and had set the lawyers aside in their deliberations. [Laughter.]

Something had been said about the gas industry acting in concert with the electricity industry. Probably it was too late in this country to follow the example of the Americans, and link gas and electricity together. However, they could console themselves with the thought that in the long run it might be to the advantage of the country that there should be competition between them. Gas producers were alive to the fact that it was well to work with the electricity people as far as was possible; and about two years ago a Committee comprising representatives of both industries met from time to time in London, and discussed matters, to mutual advantage. Mr. Kelly, he thought, would agree this was a step in the right direction; and from that small beginning greater things might grow. Another reason why he was proud of the gas industry was that it was well-ordered. It had fewer scandals, financially and otherwise, than almost any other industry in this country. They did not ask for complete emancipation of the industry from public control. All public utility industries must be subject to a certain amount of public control, because they enjoyed privileges conferred upon them by Act of Parliament; but they did ask to be released from the unnecessary trammels which were now restricting their operations.

Co-Operation within the Industry.

To bring co-partnership in as a means of reducing wages was entirely wrong, and it was the last thing that the gas undertakings would think of. They looked upon co-partnership as an act of grace, something superimposed upon wages—not a factor of decrease. Generally in combination and co-operation the gas industry led. Practically the whole country was joined in the National Gas Council. Then there was the Joint Industrial Council, a shining example of operation. In the troubles of recent times, when the gas industry had stood firm, it was largely helped by the fact that there was a strong and active Joint Industrial Council. He had heard Labour men say, over and over again, that it was the best Joint Industrial Council in the country. Incidentally, it was the cheapest to run. Another example of co-operation was the British Commercial Gas Association. He would not say anything more about it, because the Chairman was present and could speak for himself. But they were by no means at the end of co-operation. Especially was there a necessity to have greater co-operation in regard to the bye-products—tar, creosote, pitch, and coke. The British Road Tar Association did a great deal of good work in encouraging the use of British materials on British roads; but more might be done in that direction. He entirely agreed with Mr. Kelly's suggestion that joint research was necessary in regard to subjects connected with the industry. There was a great need of fresh outlets for products other than gas.

He did not propose to say anything about the Area District Supply Committee, except that it was on the eve of issuing a report. No one outside the Committee knew what would appear in that report, but at any rate it was to be hoped it would judge fairly between the gas industry and the ambitions of the coke industry. If it did, he was sure it would be loyally supported by the gas industry as a whole.

The President also responded to the toast. He said he observed with delight that many old friends had attended in order to join in the celebration of the Diamond Jubilee of the Institution, but he was very sorry that Mr. Booth, formerly the Engineer of the Southport Undertaking, could not be present. Mr. Booth was the sole survivor of the band of stalwarts who met at the Mitre Hotel in 1870 and started the Institution in life.

The gas industry had done a great deal to improve the conditions under which people lived. To a marked degree it had reduced the drudgery of the household, and it contributed largely to producing a cleaner atmosphere. It was a regrettable fact that annually 40 million tons of coal were consumed on the domestic hearth; surely it was better to deal with that coal in gas-works for the production of gas and coke, two forms of fuel the use of which reduced atmospheric pollution. Probably about 70 p.ct. of the households of this country were fitted with gas cookers. In the past, legislation had hampered the industry by imposing restrictions. This reacted upon the consumer, who was required to pay more than he would have had to pay if the industry had had freedom of action. Recent legislation had shown some improvement in this respect, but they had less freedom of action than their friends or competitors in the electricity industry, who could charge varying rates for their commodity. In his own town, Bolton, there were variations from ½d. to 4½d. A minimum charge of 7s. 6d. per quarter could be imposed. Now many consumers of gas were a source of loss to the undertakings which supplied them. The time was ripe for giving the gas industry more consideration in these matters. Also, there should be more publicity. The advantages derived from the use of gas should be impressed upon the public through the Press, and there should be well-equipped showrooms and staffs of intelligent inspectors who could advise consumers as to the best and most economical apparatus to instal. Above all, it was necessary to instruct the consumer, or the intending consumer, that the cost of the fuel was not the only thing to be considered; account must also be taken of the freedom from dirt, the saving in labour, and the improvement in ventilation which was made possible by using gas for heating and lighting.

The Commerce and Industry of the District.

Sir Arthur Duckham, K.C.B., G.B.E., proposed the toast of "The Commerce and Industry of the District." He said it was difficult to propose such a toast at a time when Manchester was suffering from great trade depression, but, although the unemployment figures were so large, there was a sort of melancholy satisfaction in the knowledge that other great industrial countries, even the United States and Germany, were suffering from unemployment almost as badly. The worker now enjoyed benefits which no one begrudged him but which had a twofold effect in swelling unemployment. In the first place, there was not now that eager search for work which there was in the past, when a man faced the prospect of starvation. Secondly, it might be that employers put men off more freely to-day because they knew the men would be cared for if no other employment was available. The question was whether that burden could be carried by the paying part of industry. However, he was an optimist, just as Mr. Kelly was. He believed there were possibilities in the Manchester area which should assure a bright future. Its citizens were leaders in thought and in industrial activity. The district had the best workers in cotton, cheap supplies of fuel and power, and wonderful facilities for importing raw material and exporting finished articles. In some ways the depression and deflation had done good. They brought about co-operation between industrialists where formerly there was suspicion and conservatism, and the capitalist, the administrator, and the worker had been brought together.

Mr. R. Noton Barclay, J.P., the Right Hon. the Lord Mayor of Manchester, who responded to the toast, said he agreed that they must avoid a pessimistic frame of mind.

The Visitors.

This toast was proposed by Mr. S. Tagg (Preston). It was replied to by Sir Gilbert C. Vyle, Past-President of the Association of British Chambers of Commerce, and by Mr. F. W. Goodenough, C.B.E., the Chairman of the British Commercial Gas Association.

Southern Association of Gas Engineers and Managers.

Annual General Meeting.

The Annual General Meeting of the Association was held on Friday last at the Hotel Cecil, Strand, W.C., under the Presidency of Mr. Frank H. Jones, M.Inst.C.E., who delivered his Inaugural Address. As is customary, the business was preceded by a luncheon, at which a number of visitors were present.

Speeches at the Luncheon.

Dr. T. Lewis Bailey, proposing the toast of "The Southern Association," spoke of the spirit of whole-hearted co-operation animating the members, which made for good. Though now in a sense an "outsider," he said that he still retained an interest in the industry. In fact, he had some real connection with it through the effluents work of the Institution. The Association had had many influential Presidents, and at the present moment the position was held by one of the shining lights in the constellation. The Association had been equally fortunate in its Secretaries. To the late Hon. Secretary, Mr. H. C. Smith, he was indebted for many favours. On a similar occasion a year ago, he (the speaker) had talked to the members on the subject of vision. Vision of the right type was absolutely necessary, and if it were possessed by the whole of the members there was no need to fear for the future of the Association. He thought they did possess it. Given vision, there was bound to be goodwill; there was bound to be hand-in-hand working; and there was bound to be progress.

The President, replying, said the Association was one to which he felt sure every member was proud to belong. It had certainly been very lucky in the past in its Presidents and Secretaries; but these gentlemen, all of whom had done good work, would not have consented to serve had there not been goodwill and hearty co-operation on the part of the whole of the members. Of course, the Association had the great advantage of being based more or less on London and the South, in which there were many big Companies.

Mr. H. C. Smith (Vice-President), submitting the toast of "The Visitors," referred first to Dr. Bailey, and to the great help which he had given to the gas industry in his late official capacity as Chief Inspector of Alkali Works. Dr. Bailey, he said, had been an officer in a Government Department who was not out to catch and hinder the gas engineer, but to help him on every possible occasion. He wished all Government Departments were out to assist the industry in the way that Dr. Bailey had been. Among other visitors present at the luncheon were officials of the National Gas Council and of the British Commercial Gas Association. There was Mr. F. W. Goodenough, Executive Chairman of the latter organization; and they were pleased, too, to see Mr. Alexander, the new Secretary of the Institution of Gas Engineers. They had with them Mr. A. Gregory, President of the Eastern Counties Association, and Mr. F. S. Larkin, President of the London and Southern District Junior Association. Then there was the gentleman whose name he had left until last, Mr. C. S. Shapley, President of the Institution of Gas Engineers—the highest honour to which any of them could aspire. They were very proud that yet another member of the Southern Association (though now living in the North) had been elected President of the Institution.

Mr. C. S. Shapley, with whose name the toast was coupled, said, in acknowledgment, that he hoped he would have the honour of remaining a member of the Southern Association so long as he was in the industry. He had been particularly pleased to hear the reference to Mr. Alexander, who had started on a stupendous task, and was getting things into shape very nicely. The Council were right behind him, and he (the speaker) felt sure that the Institution was going from strength to strength. On the Council were young and active men; and the outlook was in every way most promising. They were fortunate enough to have Mr. Goodenough at the head of the Education Committee, which was doing an enormous amount of good work. The industry would have at its disposal a different class of gas engineer altogether. He would be a technically trained man with his appropriate degrees. This would be greatly to the good of the industry, which was now faced with competition of the keenest character. This competition the industry was handicapped in meeting, because of the legislation that was imposed upon it many years ago. When electricity undertakings could supply current to the consumer at round about a halfpenny per unit, it was time for them to "sit up and take notice." He had already formed one Committee, who had had an interesting discussion and would be meeting again shortly. After that, they were going to circulate the minutes. A lot of interest would be aroused, and they would probably have a very much wider knowledge in the matter of gas charges than before.

The President extended to the members a hearty invitation to be his guests at Eastbourne on May 9. Referring to the position of industry, he said: "Looking at the people who are now conducting it, and at the younger people who are likely to conduct it, I feel very strongly that all is well with gas."

Business Meeting.

The proceedings at the subsequent meeting were opened by the confirmation of the minutes of the previous meeting as published in the "Journal."

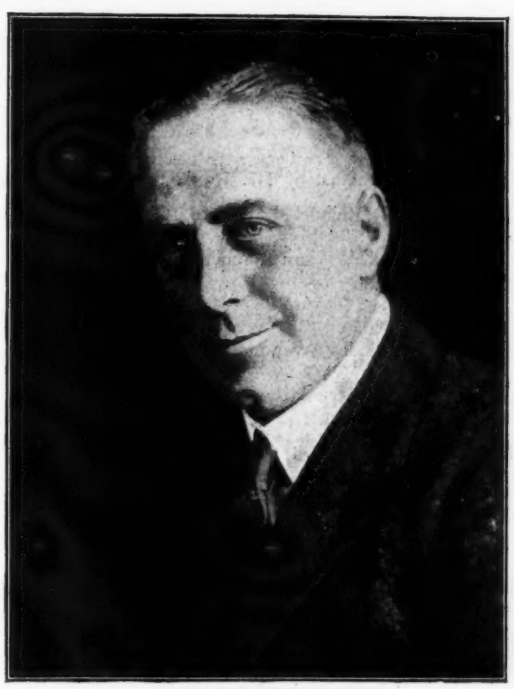
Annual Report and Accounts.

The report for the year 1929, as circulated among the members, was next submitted. It included the following items:

The Committee deeply regret to record the deaths of the following members: Mr. H. Buckley, Windsor; Mr. T. S. F. Gibson, London; Mr. Charles Hunt, London; and Mr. A. H. Richardson, Tottenham.

One member resigned during the year. The membership on Dec. 31, 1929, consisted of 5 honorary members, 323 members, and 2 associates.

The audited accounts for the year show a surplus of £33 4s. 7d., bringing the credit balance to be carried forward to the sum of £192 18s. 1d.



THE PRESIDENT,

Mr. Frank Harding Jones, M.Inst.C.E.

Mr. Frank Harding Jones represents the third generation of his family which has held prominent positions in the gas industry. He is an engineer of wide experience, apart from his work in the industry. He was educated at Rugby, later becoming an articled pupil and afterwards an assistant to the late Sir John Wolfe Barry. Under Sir John Barry he worked on the Tower Bridge, and the underground railway in Glasgow. In 1896, Mr. Jones became a partner with his father, the late Mr. Henry E. Jones, Past-President of the Institution of Civil Engineers. Since that date Mr. Frank Jones has spent all his time in organizing and managing gas and water companies. He is Chairman of the Eastbourne Gas Company, and of the Wandsworth, Wimbledon, and Epsom District Gas Company. In addition, he is the Vice-President and Joint Managing Director of the South Metropolitan Gas Company, and holds important positions on the Boards of numerous Gas and Water Companies in Great Britain, and is a Director of one Gas Company in Malta, and two others in South America.

Eastern District.

Ten meetings were held during 1929. Nine of these were held in London, the average attendance at which was 28·3 members. This average represents only about 10 p.ct. of the total number of members attached to the Section, and the Committee will be glad to consider suggestions for enhancing the attractiveness of future meetings. The discussions on commercial matters, coupled with the circulation of market returns, have been much appreciated.

At the January meeting a report on the work of the South-Eastern District Education Committee was presented by Mr. Prater, the Hon. Secretary, and fully discussed. Copies of the report were sent to all other Associations and to the Institution of Gas Engineers.

Excellent technical papers have been read and discussed during the year. The thanks of the members is due to the authors of the papers for the general excellence of the matter presented. The informal and confidential nature of these discussions is much appreciated, and results in free expression of opinion. All papers and discussions thereon are recorded, and transcripts are provided for the benefit of members desiring them.

The county meeting, which was held at Brighton, in April, and was attended by 37 members, was highly successful. Members are indebted to Mr. C. H. Rutter and his staff for the excellent arrangements made for their comfort on this occasion.

H. C. Smith, *Chairman.*

Western Section.

During the year, nine meetings have been held, one each at Weston-super-Mare and Exmouth, and seven at Exeter. The average number of members attending the meetings has been 19, against 20 in the previous year. There have been many useful discussions on commercial and technical subjects during the year, and matters of great importance to the members have had close attention. The results of the deliberations have been distinctly beneficial to the gas undertakings represented in the district.

The following members were elected as District Officers for the ensuing year:

Chairman.—James Armstrong.

Vice-Chairman.—R. J. H. Clark.

Committee.—Messrs. F. Blackburn, J. H. Cornish, C. G. Dawson, W. E. Dean, S. E. Halliwell, C. Harris, H. Higham, P. S. Hoyte, J. H. Lowther, Jos. Harger Pye, H. E. Riley, C. Stapleton, Jas. Taylor, A. Thomas, H. W. Versey, E. P. Vince, and W. N. Westlake.

Hon. Secretary.—J. B. Cattle.

Jas. Taylor, *Chairman.*

On the proposition of the President, seconded by Mr. W. E. Dean (Exmouth), the report was unanimously adopted.

New Members.

The following new members were elected, on the motion of the President, seconded by Mr. H. C. Smith (Tottenham).

Mr. Henry Michael Lawrence, Gas Light and Coke Company.

Mr. Edward William Bennett, M.C., Gas Light and Coke Company.

Mr. Frederick Gerrard Pyper, Gas Light and Coke Company.

Mr. Cecil Rhodes Armitage, British Gas Light Company, Norwich.

Mr. Charles Gerald Barrett, Devizes.

Mr. John Kenneth Grant, Horley.

Thereafter it was agreed, on the proposition of Mr. Dean, seconded by Mr. J. W. Whimster (Bath), that the President be the representative of the Association on the Council of the Institution of Gas Engineers for the ensuing year.

Presentation to the Retiring President.

The President said that it now fell to his lot to make a presentation to Mr. Dean of a piece of plate, as a memento of his year of office. In addition to being present at the meetings at which Mr. Dean had presided, he had seen his works, and he had come to the conclusion that Mr. Dean was much too modest a man. Anyhow, he deserved the piece of plate with which they were about to present him, and he hoped that it would long remind him of the year of office he had enjoyed, and give him and his family great pleasure. [Applause.]

Mr. Dean, returning thanks for the presentation, said that when he was asked to accept the Vice-Presidency of the Association, he felt doubtful whether he could fill the office of President to their satisfaction. He, however, did his best. In years to come his family and himself would look upon this piece of plate as a mark of the esteem of the members.

The Hon. Secretary's Services.

Mr. Dean said he now came to one of the most pleasant duties that could fall to a man in his professional life. He was referring to their highly esteemed friend, Mr. H. C. Smith. Mr. Smith had come from the Midlands to the South of England some years ago, and immediately he came South everybody said he was a jolly good fellow. Then when the time arrived for their old friend Mr. Willie Bennett to give up his office, he looked round for someone to do the work of Secretary of the Association, and he could not have hit upon a more happy selection than Mr. Smith. During the time Mr. Smith had been Secretary, he had met all the members with that genial spirit which oozed out of him. He had helped old and young alike. When in due course Mr. Smith relinquished office, he found in Mr. Donaldson a man as welcome to the Association as the other Secretaries had been before him. When he (Mr. Dean) learned that Mr. Smith was giving up his position as Hon. Secretary, he thought it would be very remiss if they let him go without some token of their appreciation of what he had done. He therefore sent out a letter to the members asking them to subscribe to a testimonial, and it met with a wonderful response, which was an indication of the high esteem in which Mr. Smith was held. He now asked Mr. Smith to accept a canteen of silver bearing the following inscription:

> Presented to Mr. H. C. Smith by the Southern Association of Gas Engineers and Managers, in recognition of his services as Hon. Secretary.

This was but a small tribute to the great services Mr. Smith had rendered to the Association. He asked him to accept it with best wishes for the future, and the hope that both he and the members of his family would long live to make use of it. [Applause.]

Mr. H. C. Smith said he had to thank them in the first place for this very handsome present, and Mr. Dean for the flattering way in which he had made the presentation. He wanted to assure them that, while he appreciated very much the kindness which prompted them to make this gift, it was entirely unnecessary, as the work itself had given him much pleasure, and further reward of any kind was unnecessary. Nevertheless, it would serve as a reminder—if any reminder was required—of those friendships, and he did thank them from the bottom of his heart for their great kindness. He would like to take this opportunity of thanking them one and all for the assistance they had given him during the past few years. It would be impossible for anyone to carry on as Hon. Secretary of the Association without the help of every member. He hoped every member would give his successor, Mr. Donaldson, the same support as they had given him. He would like to thank his confidential assistant, Mr. Tracey, for the great assistance he had given him; and he could not sit down without also thanking his Directors for allowing him to carry on this work—particularly Mr. Henry Woodall (his Chairman) and Mr. Broadberry, who appreciated what the Association did, and had always given him every possible backing in doing what little he could.

Presidential Address.

Mr. Frank H. Jones then read his address, which will be found on later pages of this issue of the "Journal."

Before doing so, he explained that, in the middle of February, when he was about to start writing it, domestic matters called him away to Italy. What he was about to read to them, therefore, was written during the long railway journey on the way back, with nothing at hand to which to refer. His aim had been to lay before them the experience and views of somebody who had worked in the industry for some time, but who had come into it a perfect stranger.

Mr. F. Livesey (Maidstone), proposing a vote of thanks to the President for his address, said it had been a most interesting one. They were all aware that as recently as last October, in his capacity of President of the "B.C.G.A.," Mr. Jones had prepared another address; and all present at Eastbourne were impressed with that address, and with the dignity with which he conducted the proceedings on the occasion of the visit of the Duke and Duchess of York. The gas industry no longer consisted of single isolated units. It was really welded into one homogeneous whole, and therefore it depended more and more on the central organizations and therefore on the men at the top who took important parts in their deliberations. While each member would admit that he had difficult matters to think over and keen competition to meet in his executive capacity, they all fully appreciated that those men who had given their lives and risked their money in the gas industry, and were administrators of gas undertakings, carried this responibility to an even heavier extent. Therefore, they appreciated very much Mr. Jones's public spirit in becoming their President, and taking part in their deliberations. The gas industry required at the top not only men of eminence and skill, but men who could influence public bodies in their favour. At no time had gas politics been more interesting; and no policy of isolation or amalgamation could be of real service to the industry unless all the pros and cons were most carefully considered before a decision was arrived at. The industry was fortunate in having as its leaders practical engineers and practical accountants. They had escaped the dangers so many industries got into of falling into the hands of financiers—pure or impure, simple or designing. [Laughter.] Members had been very interested, he was sure, in the details of the President's early career. Mr. Jones was worthily wearing the mantle of his father which had fallen upon him. Optimism combined with hard work could do nothing but good.

Mr. R. Robertson (Bristol) said it gave him the greatest possible pleasure to second this vote of thanks for the very admirable address. They came expecting very great things from Mr. Jones, and they had not been disappointed. What had interested them perhaps as much as anything were the biographical details, because they were all interested in their great men. They also appreciated very much his *obiter dicta* on some of the leading questions of the day. He would like to associate himself with the expression of satisfaction and pleasure of every

member of the Association at Mr. Jones having come forward as their President, and at the public spirit which has prompted him to do so [Applause.]

The President, returning thanks, remarked that he was there to do what he considered to be the duty of somebody to whom the gas industry had been extraordinarily kind. He wanted to try to repay some of the kindnesses he had received. If he had done nothing more than to give people ideas of what was running in his own mind, and they cared to pursue them, he would be more than repaid. He did agree very strongly with what Mr. Livesey had said about finances. The gas industry had been managed more efficiently, more cleanly, and more correctly than many industries. ["Hear, hear."] It would be a bad day when the gas industry got into the hands of people who put up the values of stocks merely that they might be trafficked in. It was certainly a very good thing to be optimist; and there were many signs to make one an optimist in the gas industry. There were things which must be looked into, and they would come along for the younger men. If the members knew of any good young men to fulfil what he had tried to sketch, and would send them along to him, they would be doing him a much greater service than by applauding what Mr. Livesey and Mr. Robertson had said, for which he thanked them heartily.

A Fine Example of Street Lighting by Gas.

GAS LIGHTED SECTION OF LEWISHAM HIGH STREET.

In our editorial columns last week we called attention to an extremely interesting gas v. electric lighting installation at Lewisham, and mentioned that on the night of March 24 the scheme was inspected. Representatives of the Ministry of Transport, street lighting authorities, and various motoring bodies—as well as a number of prominent motorists—were present.

It is an experimental installation, and the tests, which are being made by the Lewisham Borough Council, have been undertaken in order to enable a decision to be taken on the relative values of gas and electricity for street illumination. The South Metropolitan Gas Company and the South Metropolitan Electric Light and Power Company were invited to equip a mile of the High Street, which lies on the main road from London to Hastings, with the best possible types of their respective systems.

After a tour of the area, the party, which included Earl Howe, Capt. Malcolm Campbell, and Miss Violet Cordery, made a close examination of the lights from the intervening space in front of the War Memorial.

Lord Howe expressed the view that the evenly diffused illumination shed by the gas lamps, which are suspended over the centre of the roadway, was eminently suitable for motoring purposes, giving, as it did, a clear line of vision for several hundred yards ahead.

Capt. Malcolm Campbell, who has studied the question of lamp standards, stated that he felt the electric lights were not set out to the best advantage and, in his opinion, would probably have been more suitable for pedestrians and motorists alike if the principle of overhead illumination had been adopted. Gas lighting, he said, would doubtless prove to be more reliable, and was certainly more penetrating in foggy weather.

Miss Cordery remarked that she found the glare produced by the electric lights particularly bad to drive under, as the reflectors fitted to the lights tended to divert a driver's attention from the roadway. The gas lighting, she believed, was very comfortable and restful for the motorist.

Capt. W. J. Liberty, Hon. Secretary of the Association of Public Lighting Engineers, said that, although he was naturally impartial in his attitude, he could not but admit that the gas-lighting arrangements in this case were superior to the electric installation; and this view, as we remarked last week, was generally endorsed by the majority of those who inspected the two systems.

Members of the Works and Highways Committee of the Lewisham Borough Council formally inspected the lighting area on March 27, and their decision will shortly be reported to the Council for consideration.

"Patents and Trade Marks."—The 1930 Edition of this useful handbook by Mr. B. T. King, Managing Director of Kings Patent Agency, Ltd., has now been published. This is the eighteenth issue, and has been revised and enlarged, on the completion of the author's forty-four years' active practice in all that relates to the patenting of inventions, the registration of trade marks and designs, and the protection of copyrights. Incidentally the present issue serves to mark the coming-of-age of Kings Patent Agency, which was incorporated as a Limited Company in 1908. Several new features are included, of which reference may be made to the section dealing with the difficult problems relating to employees' inventions. The Trade Mark Section has been amplified, and includes specimens of marks registered by the author.

Parliamentary Intelligence.

[From Our Special Correspondents.]

House of Lords.

Special Orders.

The following Special Orders, having been passed by the Special Orders Committee, have been approved by the House: Haslemere and District, Houghton-le-Spring, Wellington (Salop), and Stone.

Private Bills.

The South Staffordshire Mond Gas Bill has been reported from the Committee without amendment, and is now awaiting third reading.

House of Commons.

Special Orders.

The following Special Orders have been approved by the House: Haslemere and District, Stone, Wellington (Salop), and Houghton-le-Spring.

Plans have been deposited in connection with the Glastonbury Gas Order.

Private Bills.

The Brighton and Hove Gas Bill has been reported from the Committee, with amendments, and is now awaiting consideration upon report

Glasgow Corporation Bill.

A debate took place on the second reading of the Glasgow Corporation Bill in regard to Clause 54 dealing with the supply of gas under the Gardner contract. After considerable discussion the Bill passed its second reading and was referred to a Committee. An instruction to leave out Clause 54 was withdrawn.

Plymouth Gasholder.

Mr. Hore-Belisha asked the Lord Privy Seal what schemes for the relief of unemployment, together with their estimated cost, had been submitted by the Plymouth City Council since the Government took office, which had been approved, and how much the Government grant had been in each case.

The reply furnished by Mr. Thomas included an item of £35,700 for a new gasholder, which had been refused for grant on the ground that the work was not being accelerated.

Coal Mines Bill.

Captain Austin Hudson and Commodore King have put down the following amendment on the Report Stage of the Coal Mines Bill, which is to be taken this week:

> Clause 3, p. 7, line 5, at end, insert—
> Provided that the owners of coal mines shall not in respect of any coal sold or supplied by them, which is used, or intended to be used, for carbonization or gasification, show any undue preference in the matter of prices in favour of such coal as against coal of the same nature and grade supplied to gas undertakers.

Brighton and Hove Gas Bill.

The Bill promoted by the Brighton and Hove General Gas Company dealing with the conversion of certain preference and debenture stocks, &c., came before the Unopposed Committee of the House of Commons on Wednesday, March 26, and was ordered to be reported for third reading.

Mr. A. B. Winser (Messrs. Sherwood & Co.) said the Bill had three principal objects. The first related to the pension fund, the second to the capital redemption fund, and the third to the conversion of preference and debenture stock. The remaining provisions of the Bill were of a more or less domestic nature. Originally the Bill was opposed by seven local authorities—namely, Brighton Corporation, Hove Corporation, Portslade Urban District Council, Shoreham Urban District Council, Southwick Urban District Council, Steyning Rural District Council, and the East Sussex County Council, but amendments had been made in the Bill which had satisfied all these local authorities, and the oppositions had been withdrawn. A clause had been drafted varying the differential price area in relation to the parishes of Portslade, Shoreham, Southwick, and Steyning, which would have the effect of giving these districts the benefit of a supply of gas at a lower price, but at the moment the Brighton Corporation had not agreed to that modification, and therefore he asked the Committee to strike that clause out of the Bill, to enable the promoters to negotiate the matter before the Bill reached the House of Lords, when it was hoped to include a clause which would meet with the approval of the Brighton Corporation.

Another matter to which the attention of the Committee was drawn was in respect of a report of the Board of Trade relating to the statement of capital of the Company as set out in the preamble of the Bill. It was pointed out by the Board of Trade that the paid-up capital of the Company was stated to be £960,914, and that the total authorized capital of the Company was £1,028,460. Under the Brighton and Hove Gas Order, 1926, the then existing "A" ordinary consolidated stock of the Company, entitled to a standard rate of dividend of 7 p.ct. and amounting to £244,200, with premiums amounting to £68,990, was converted into £341,880 standard consolidated stock with a standard rate of dividend of 5 p.ct. There was, accordingly, the Board of Trade pointed out, an increase in the nominal value of this stock of £97,680, which exceeded the amount of the premiums which have been obtained on the stock before conversion. The Board suggested that it was the usual practice in such circumstances for the premiums obtained on the unconverted stock to be merged in the nominal amount added on conversion, and that the amount of the paid up and authorized capital of the Company as shown in the preamble of the Bill should be reduced by the amount of the premiums—namely, £68,990.

Mr. Winser said that, although the Bill had been amended in accordance with this report of the Board of Trade, he was asked to inform the Committee that the Directors of the Company did not acquiesce in the views of the Board of Trade, and, although the Bill would proceed as amended, he would like an opportunity of discussing the matter with Speaker's Counsel, in the presence of a representative of the Board of Trade. It was a question of accountancy as much as anything else, but so far as the present Committee was concerned the Bill would proceed as amended in accordance with the views of the Board of Trade.

Mr. H. C. Burton (Secretary of the Brighton and Hove General Gas Company) formally proved the preamble of the Bill, which was then ordered to be reported for third reading.

The proposals with regard to the conversion of capital are as follows: There is £10,000 4 p.ct. "C" preference consolidated stock, and it is proposed that for each £100 of this stock there shall be £66 13s. 4d. of 6 p.ct. "B" preference stock. In the same way the 4 p.ct. perpetual stock of the Company is to be converted into 5 p.ct. stock at the rate of £80 of 5 p.ct. stock for each £100 of 4 p.ct. stock.

The provisions in the Bill with regard to pensions authorize the Directors, if they think fit, to establish and maintain a pension fund, and in the event of their so doing any sums now standing to the credit of the benefit fund established under the Brighton and Hove Gas Act, 1912, shall be credited to the new pension fund, the benefit fund then ceasing to exist. Authority is also given to the Directors, in the event of the dividend payable in any year or half-year under the sliding-scale being less than the standard rates of dividend, to declare dividends in excess of the dividend payable under the sliding-scale, but, of course, not in excess of the standard rates.

There are also a number of provisions for the protection of local authorities in regard to road and bridge works.

Auckland Gas Company.

Sixty-Eighth Annual Meeting.

The Annual Meeting of shareholders in the Auckland Gas Company, Ltd., was held on Feb. 3—Sir Geo. Elliot, the Chairman of Directors, presiding.

In moving the adoption of the report and statements of account, the Chairman said: The total receipts from the sale of gas, together with the balances of the various accounts, amount to £465,615, and are less by £5093 than those of last year. Against this drop in the income, however, it is pleasing to note that the working expenses amounting to £351,691 show a reduction of £9445. During the year gas service pipes have been connected up with the premises of 1333 additional consumers, bringing the total number up to 47,981; nearly thirteen miles of new mains have been laid, making the total mileage 642, and 3615 cookers have been installed, making a total number of 38,634 in use. The gas-heated water storage systems recently introduced are meeting with public approval.

It may not be amiss at this stage to remind you of the price reductions that have been made since the end of the war, though raw material and wages have not come down. Threepence was taken off the price in 1922, 6d. in 1923, 3d. in 1924, and 6d. in 1925.

Presidential Address of Mr. Frank H. Jones, M.Inst.C.E.

[Southern Association of Gas Engineers and Managers, March 28.]

It now becomes my duty to address you, and as one who does not believe in dogmatizing I feel that a man's own personal experience should furnish what may be of, at any rate, some interest to such an audience as I am addressing.

I do not propose to go into the particulars and details of management of any particular company or gas undertaking, but I do propose to try to give you the views of one who, though the son and grandson of gentlemen who had worked all their lives in the gas industry, was brought up with no idea of being connected with our industry.

On leaving school at about seventeen years of age, and spending a year in workshops and drawing offices, I was then articled to the late Sir John Wolfe Barry and Henry Mark Brunel, who in those days were Engineers to a great many of the Railway Companies and Dock Companies both at home and abroad.

Having spent a year in the drawing office, I was sent as a very humble assistant on the railway then being built for the South Eastern Railway, a line running from Shortlands to Nunhead in South London. Then I spent the last two or three years on the construction of the Tower Bridge, working under the Resident Engineer, Mr. C. W. Cruttwell. He had two assistants, of which I was the junior; and on looking back over all these years, I should think that Mr. Cruttwell had more influence on my working life than any other person. Whatever time we started in the morning until whatever time we left off at night, we never left the bridge, having lunch in the office; and each one was allotted certain duties with theodolite, level, setting out plans, and the many different duties of inspection. Mr. Cruttwell was kindness itself, but mistakes were unforgivable, and it was no good going to him saying that the centre line or a level was wrong, you had to do it again until it was right, and not worry him.

From there, I went to the Underground Railway called "Central of Glasgow" which was then being built, and I had charge of a section, and this was practically all tunnelling and cut and cover work. There I was under Mr. Donald Mathieson, who was the Resident Engineer, and afterwards Chief Engineer of the Caledonian Railway, and later General Manager of that Railway. Here again, mistakes were not permissible.

From there I went to set out the site of the Grangemouth Docks on the Firth of Forth. And then I was put in sole charge to set out and superintend the construction of the railway connecting Purley to Epsom Downs Racecourse. I saw that railway constructed from the actual setting out of the fence lines to its completion. There was a tunnel, a viaduct, and, I think, twenty-nine bridges, and five or six stations. My only assistants were one clerk and a young engineer of about my own age fresh from the Crystal Palace School of Engineering. Being thrown, as I was there, entirely on my own resources, again was a great lesson to me. So that when, at the very end of the last century, my father, who was very busy, suggested that I should become his partner, it will be readily understood that it was a complete change in my life as a young man. Until then I had had nothing to do with the administration of an undertaking, other than the building of it, and seeing that the work was properly set out, and properly built, and that in every way it fulfilled the requirements of the drawings and specifications. The financial side of it—*i.e.*, the cost of work—had in no way entered into my business. Naturally I had not been very long in that new position when I found that finance and management form a very great portion of one's work, and that pure engineering and science were only part of one's occupation; but I had the great advantage of seeing the detailed administration, as well as the engineering, of a large number of gas companies.

I have only told you these details of my training that you may see how entirely new everything was to me when I first entered the gas industry.

Objects of the "S.A.G.E.M."

Now in addressing you, Gentlemen, I want to keep in mind whom I am addressing. The Southern Association of Gas Engineers and Managers is a body formed long ago, in November, 1875, for definite purposes; and I think I cannot do better than quote from the first Address of the late Mr. A. H. Wood, of Hastings, the views he took of the objects of the Association. As I read his Address, it was formed for the following reasons:

(1) To meet for mutual counsel, benefit, and instruction of each other, and to discuss the many topics which are continually arising in the gas industry, especially in our own districts.

(2) The reading of papers to help further these objects by throwing subjects open for discussion.

(3) To cover ground dependent on local circumstances, and to investigate them in connection with the manufacture and distribution of gas.

(4) To discuss matters of scientific interest.

I imagine that these four views are, in 1930, still the main objects of our Association. I think—and I speak from my own experience—that the gas industry has been, and is, a very generous one in helping these objects. Very few undertakings withhold information, and, generally speaking, they are most open and free in giving information in their own particular sphere, which may be useful to others.

Large and Small Undertakings.

Our late President, both at Exmouth last year and in London this year, as I said at the time, was much too modest as representing what can perhaps be called a small gas undertaking. I have been in most of the big gas-works of this country, and in many abroad, both large and small, and I am not speaking a platitude when I say that I think I have learnt as much from the smallest undertakings as I have from the largest.

The man managing an undertaking of such a size that he knows every individual working for the company, and every piece of plant and every pipe and valve, really has a greater advantage in conducting his undertaking than the man who has a very large undertaking under his control, however many and able his assistants may be. This is a view which is, I know, not shared by all of us, but it is my own definite opinion; and if I may be allowed to offer an opinion on the ideal engineer and manager of a large gas undertaking, he is the man who has worked in a small works and has had the wisdom to make himself not a "Jack of all trades," but a "Master of all trades" connected with the industry.

I think most of us in this room would agree that in one's life, and especially in one's working life, the people with whom one has dealings are really formed into two very definite groups—those in whom one believes, and those in whom one does not. There are some, we all know, who, of course, like everybody else, make mistakes, but, on the whole, never let you down. There are others who are the reverse. The former type is worth as much as the company can possibly afford to pay him, the latter is an incubus on the undertaking.

You may say that the gentleman you have honoured in making your President this year starts by telling you he does not dogmatize, and then proceeds in the last few sentences to lay down certain precepts; but I am really only explaining to you what appear to me to be actual facts.

One of the drawbacks which I feel nowadays is that the engineering part of one's life, as one gets older and has control of undertakings, falls rather into the background, and one has to leave a lot of it to younger men. But for the management (say) as general manager, or as a director, or as chairman of a gas undertaking, I do not say that it is imperative that the gentlemen filling these positions must have been trained as Engineers, but I am very definitely of opinion that in most cases the man who has been trained in his early life in the engineering and scientific side of a gas undertaking is the better person.

In studying the literature of our industry and the drawings of gas-works and districts of old, we find that processes to-day are almost identical with those of fifty years ago. In detail, of course, we have seen great changes. The old gasholder which one can see in some works to-day, built of iron and cast-iron columns, has been replaced by a holder built of steel in its tank, columns, and lifts, guided either by vertical columns or spirals; and these are being replaced by the waterless gasholder. In details these pieces of plant are very different from each other, but in duty exactly the same.

In carbonizing, the old direct-fired hand-charged small retort of iron or clay has given place to the retort heated with producer gas and charged by machinery, or the retorts or ovens are vertical or inclined, and there are horizontal, sloping, or vertical chambers. But, here again, they are only doing exactly the same work in a different way, and I think the same applies to the purification and distribution of gas.

Improvements, but not Radical Changes.

Do not think that I am suggesting that the gas industry has not made great strides, but these strides have really only been in improving the efficiency of the different types of apparatus; and, of course, the greatest stride has been in changing what was a very hard manual task for the workmen into the comparatively healthy, cleanly, and more rational way of doing the work.

When I go into a gas-works, wherever it may be, there is one part of the process which always strikes me as costly, old-

fashioned, and wasteful—that is, when the purifiers have to be changed. In this matter, there is great scope for the younger generation, I think, to see what can be done.

We used to be called "gas light" companies. I think we all agree to-day that the average gas undertaking does a great deal more than provide light. There is probably nobody in this room whose undertaking is not providing quite a large proportion of its gas for purposes other than lighting, or even cooking and domestic heating, and I think it is in the provision of power in spheres other than domestic that the large increase of business which I am sure waits for most of us is to be found. I venture to say that the undertaking is going in the wrong direction which loses sight of the large part of the business which does apply to light.

I feel confident that gas for lighting purposes, among its many other uses, has a great future; one need go no farther than this Borough of Westminster to see what outdoor gas lighting can do. There are many other examples in this country and abroad, and, when gas is so used in this climate of ours, the warming effect will, I think, always appeal to the majority of people, to whom the actual cost of public services is of account.

Luckily, our business as a rule is a peaceful one, but I would like to remind you that from 1914 to 1918 the gas industry played a very great part—for which, I think, it has never been given full credit—in providing the necessities for those years. It would be well to tell you what the late Lord Moulton gave my late father permission to quote: "Without the direct aid of the gas industry, and, further than that, the assistance and the knowledge which have been acquired by those who devote their lives to it, it would have been perfectly impossible for this country to have waged the campaign of the last three years, or even for any but a trifling time resist the overwhelming floods of enemies that were poured upon it." It is the hope of every one of us that we shall not be called upon again to provide the many articles about which Lord Moulton spoke, but, if occasion should arise, the gas industry will still be here, and the same words will, I am sure, be spoken by someone in the future.

Most of those who have left their mark upon the gas industry were men who were trained in it and who devoted their lives to it; and I venture to think that the future of the gas industry depends largely upon men who have studied the engineering and management of a gas company in its many ramifications.

On a Common Basis with Other Fuels.

I quote once more from the words of a Past-President spoken fifty years ago: "And I am equally positive that he (the gas manager) serves his company only well when he serves their consumers well, and they (the consumers) can find no legitimate fault." Is this not equally true to-day? The same President mentions that the gas industry is a monopoly. Fifty years have passed since these words were spoken, and to-day, of course, this is not the case, the gas industry having very severe competitors in coal, oil, and electricity. Having lost the monopoly, we are now on a common basis with these other fuels, and it is up to us to remain in the front rank as fuel purveyors.

I think that one of the most important duties of the older members of an industry is to see that there are people coming along trained by themselves not merely slavishly to carry on past ways and traditions, but to see that every opportunity is taken for advancing the industry. This can only be done by men of experience getting younger people of good education and intelligence, and training them to be the future heads of departments and undertakings. This, I think, is probably one of the greatest duties an older man owes to the industry.

As to attracting the right type of man to the industry, I think that latterly there has been a great improvement; but there is still a great deal of room, in my opinion, for us all to see that other industries, and especially our competitors, do not get hold of all the best types of young people.

In my address last year to the British Commercial Gas Association at Eastbourne, I said how necessary it was to train men as salesmen; and this necessity for training is equally great for the engineering and management side of undertakings. I hope and believe that the Education Scheme of the Institution of Gas Engineers will largely help this matter; but it is up to the industry itself to see that, if the people are available, and are trained, and are suitable, the attraction of a gas-works and its offices should be a congenial, interesting, and properly paid future for those who enter it.

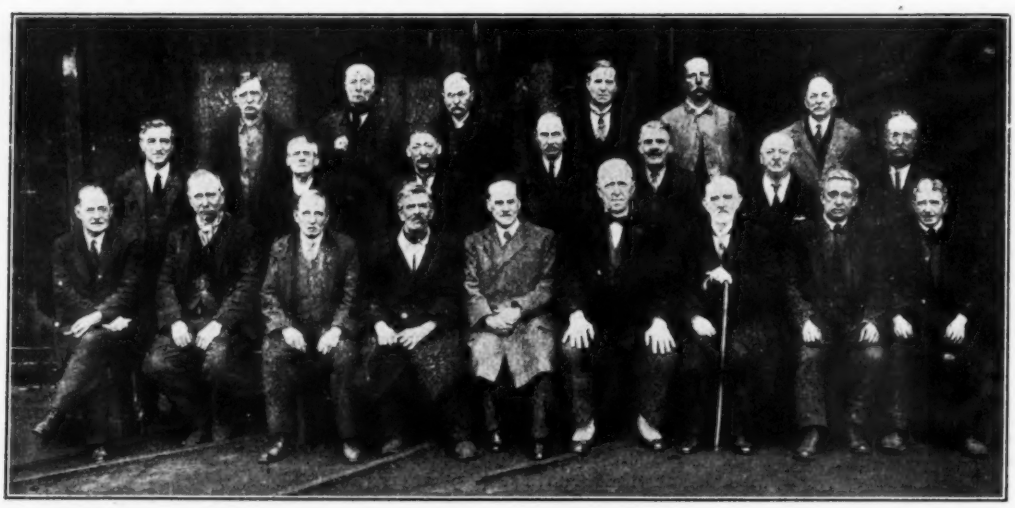
Speaking personally, I like to see the top man with somebody as good as himself, but, of course, a good many years younger. I am afraid jealousy tends to prevent this sometimes. This is all wrong, for, as although older people may think they know much more than the younger ones, it must never be forgotten that the younger ones some day will be the older ones.

I believe it is the custom and rule that a president's address to any association is not open to discussion; but if I have done nothing more in this Address than give ideas for discussions on the several matters upon which I have touched, I am more than pleased, for many of the points are, of course, debatable, and I have only given my own personal view which I have learnt from my own personal experiences.

During my period of office, I am afraid I have been of very little use to the Association, for I have not had very much time to spare during the last winter; but I do sincerely thank the members for having asked me to be their President, and for allowing me for the last half-hour to give the views of one whose whole interest is really in seeing the gas industry prosper in the next fifty years in an even greater way than it has in the past fifty; and this, I am confident, it is going to do.

Finally, I do think the present position of the gas industry owes something, and something considerable, to the relationship between employer and worker. George Livesey started the idea of co-partnership, and I am confident that where it exists it adds to the efficiency of the undertaking, and certainly lightens the burden of management, in addition to raising the standard of life of the employees.

Presentation of Long-Service Medals.



An interesting ceremony took place last week, when a number of employees at the works of Messrs. Clayton, Son, & Co., Ltd., Hunslet, Leeds, were presented with Souvenirs in recognition of their long association with the Company.

In all, twenty-four employees were presented with a special Gold Medal, together with twenty Savings Certificates. Each of the recipients had been with the firm for over forty years.

The oldest workman, Mr. James Dean, has served fifty-four years, and the average service of the twenty-four employees is forty-five years.

The presentation was made by the Chairman and Managing Director of the Company, Mr. Joseph Clayton, in the presence of the staff and workmen of the Moor End and Pepper Road Works.

Gas at Olympia.

"Daily Mail" Ideal Home Exhibition.—March 24 to April 17.

LONDON GAS EXHIBIT. THE ENTRANCE CORRIDOR WHICH LEADS TO A SPACIOUS CENTRAL HALL.

The Ideal Home Exhibition which is organized by the "Daily Mail" has for so many years been an annual feature at Olympia that it may be said to have now become an institution. It is an event which "nobody misses" who can by any means reach the accessible part of London in which it is held; and this being so the gas industry wisely seizes the opportunity to be there. With the arrival of successive springs, it is our pleasure to congratulate those who take part in the display upon the success of their efforts; and this occasion proves no exception to the rule. The domestic utility of gas is illustrated at Olympia in a manner which pleases while it impresses.

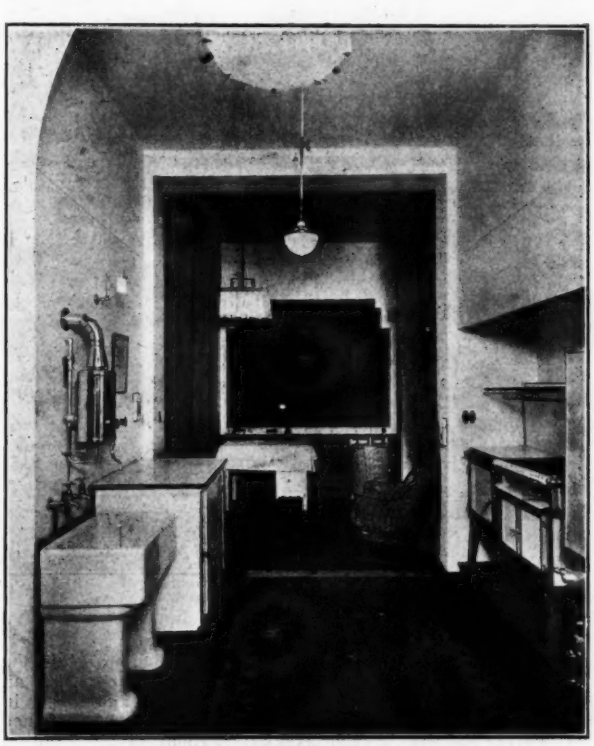
THE LONDON GAS EXHIBIT.

Beginning with the London Joint Gas Exhibit, we find that art and utility go hand in hand. While everything is seen in an attractive setting, the object right through is to demonstrate the vital part which gas takes in assuring the maximum of comfort in the home. And what better appeal could be made? The gas appliances of to-day can be made things of beauty, to satisfy the most fastidious tastes, and to harmonize with the most exacting schemes of decoration; but usefulness is their first claim, and this aspect has not for a moment been lost sight of in the arrangement of the display. As before, the London Gas Exhibit is made by the seven principal London and District Gas Companies—namely, the Gas Light and Coke Company, the South Metropolitan Gas Company, the Commercial Gas Company, the South Suburban Gas Company, the Tottenham and District Gas Company, the Wandsworth, Wimbledon, and Epsom District Gas Company, and the Croydon Gas Company. The arrangements were left in the hands of a Committee, with Mr. F. W. Goodenough, C.B.E., as Chairman, and Mr. J. E. Henwood as Hon. Secretary.

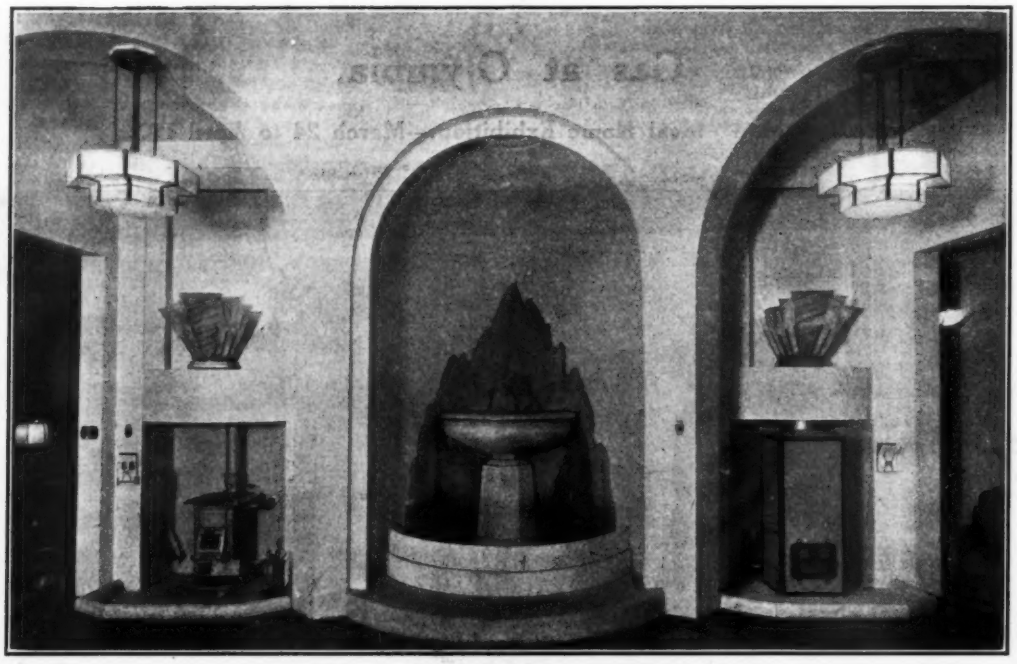
Gas in the Home.

The South Metropolitan Gas Company were entrusted with the design and equipment of the stand, which comprises an artistically furnished and decorated series of model rooms round a central hall. In these rooms the multifarious domestic uses of gas are practically demonstrated. The central hall is given up to hot water supply by gas and coke operated apparatus. The comfort and convenience of an abundant supply of hot water are brought to the mind by a hot water fountain. In the bathroom, too, there is shown the provision of hot water by three methods—the geyser for a fixed point, pressure apparatus supplying at more than one point, and the central gas or coke heated boiler. "Gas heats water quickly" is an arresting slogan which one sees displayed. The exhibit embraces a thoroughly representative series of gas cookers and gas fires; while special attention is drawn to the cleanliness and efficiency of the gas iron. The lighting has been specially designed for the stand, and affords striking examples of the adaptation of the incandescent burner to the most modern schemes of illumination.

The convenience of gas is demonstrated in many little ways which will be appreciated by the housewife, for in the home the small things really do matter. How many women, after visiting Olympia, will urge their husbands to provide the home with those little ash trays and pilot lighters which can be so easily fitted in proximity to the gas fire, and which, if they do not solve the problem of the "eternal triangle," will at any rate prove helpful in disposing of the troublesome discarded cigarette end! The pilot light attached to a gas cooker obviates the



The Working Section of the Kitchen, showing cooker, hot water circulator, refrigerator, sink heater, and ironing table.

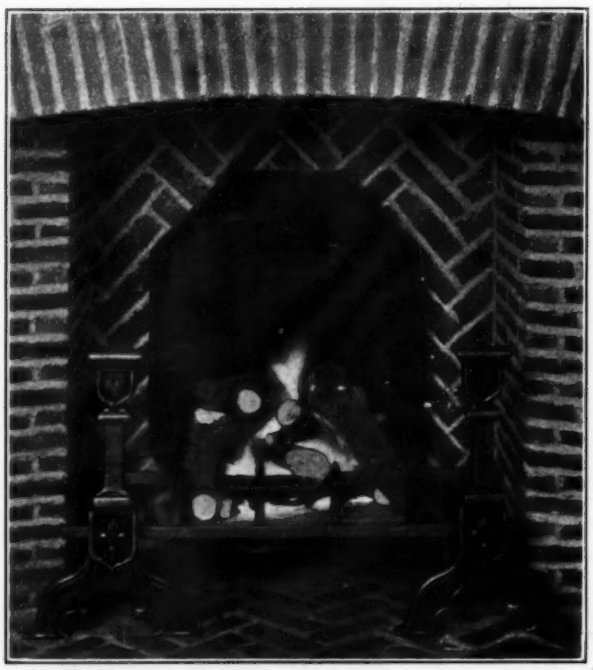


THE WATER HEATING DEMONSTRATION, SHOWING THE STEAMING FOUNTAIN, WHICH IS FED WITH HOT WATER FROM THE COKE AND GAS OPERATED BOILERS ON EITHER SIDE.

Note the specially designed gas pendants.

striking of—how many matches daily? It is always ready for use, and burns very little gas. Another thing which catches the eye is a dainty nickel plated fitment which will heat a small iron or a pair of curling tongs in a few moments. Again, every housewife will appreciate how much this means; it would be presumption on the part of a man to try to explain. Of equal appeal to both sexes is a novel appliance designed for keeping food warm.

A " Metro " coke fire in a handsome setting demonstrates



"Metro" Log Gas Fire.

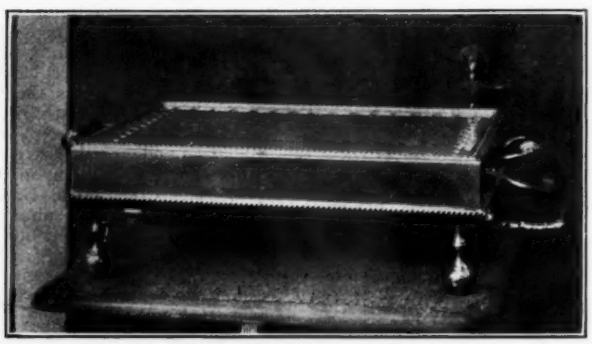
the use for heating smokeless solid fuel. Then there is the " woman's workshop." No dirt, no hard labour here, but an enticing kitchen, with cooker, hot-water supply, and copper in one part, which, when the day's work is done, can be curtained off, leaving the other portion as a sitting room, provided with a fire and a gas iron.

It may be added that the joint display, and other gas exhibits, are housed in the new Empire Hall, just on the left of the entrance.

AN ALL-GAS HOUSE.

Once again it is a satisfaction to note that the South Metropolitan Gas Company have completely equipped a house in the " Village " section of the exhibition so as to demonstrate the use of gas in the home for all purposes. The industry has been the gainer by the sustained effort which the Company have thus made ever since the inception of this housing section to stress the applicability of gas to the homes of the people.

The " Sundream " House, built by the A. M. A. Portable and Permanent Building Works, Ltd., of Laindon, Essex, and tastefully furnished by Messrs. Chiesmans, of High Street, Lewisham, is provided with a complete " Metro " service. The pendants and brackets fitted in the lounge, dining room, and hall strike a definitely new note in gas lighting fittings, the



The "Metro" Food Warmer—an appliance of handsome appearance which is attracting considerable attention.

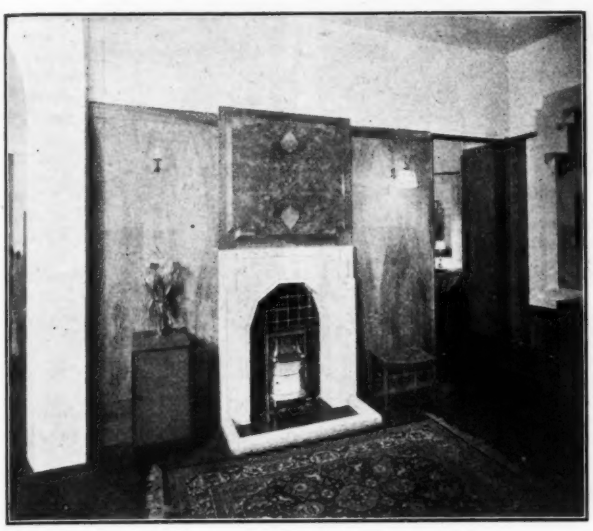
combination of wrought iron and glass employed proving most effective. In the hall there is a two-way switch, which controls the pendant from either the hall or the upstairs landing. The handsome log gas fire in the dining room shows a new arrangement of logs, which imparts to the fire an even more realistic appearance than before. In the lounge there is a basket coke fire with beautifully designed armour bright furniture. The kitchen is replete with labour saving and comfort giving appliances operated by gas; and as adding greatly to the value of the display, it should be stated that everything in the house is working. Probably it is the only house in Olympia into which a tenant might walk at a moment's notice and start living in the ordinary way. " Metro " fires and tastefully selected fit-

tings are to be found in the bedrooms; while the bathroom demonstrates alternative methods of obtaining a supply of hot water.

RADIATION LIMITED,

Birmingham.

The cookery demonstrations staged by Radiation Limited in the New Empire Hall at the Ideal Home Exhibition at Olympia are of interest to all housewives. Here the public are shown how simple an operation it is, given modern equipment, to cook to perfection all the various items of a complete dinner of several



An Exquisite Bedroom Panelled in Walnut, fitted with gas fire with concealed boiling burner, night light, curling and lace iron heater, and bracket and table lamp.

courses, simultaneously in one oven—and this without any further attention than the setting of the " Regulo " dial, which automatically controls the supply of gas.

The cooker used is a Radiation " New World," and there are many models on view. When this cooker was produced in its earliest form seven years ago it revolutionized all the prevalent notions of cooker design, as the flue was placed at the bottom of the oven instead of at the top, and only one burner was used for heating. The present standard model—although its main features remain the same—represents an even greater improvement in design. The whole cooker is now finished in a wear-resisting vitreous enamel which is cleaned in a moment. The oven has been deepened by the addition of a " low-temperature " zone, enabling both high and low temperature cooking to be done at the same time. Thus, a whole dinner—soup, fish, joint, vegetables, and sweets—can be cooked at one operation without any attention whatever.

This year, too, for the first time the new gas water heaters are actually at work on this stand. One of these, Wright's " Sunhot," which will maintain a constant supply of very hot water at the cost of a few pence per day, is particularly suitable for use in middle-class homes. By an ingenious system of insulation, it has been found possible to get from this boiler a very high figure of efficiency. The maximum consumption of gas when the boiler is being heated is only 10 c.ft. an hour; and by means of a thermostat this is automatically reduced to the almost ridiculously low figure of 1½ c.ft. an hour, when the water is hot.

Another boiler which is demonstrated in full working order is Richmonds insulated self-contained " Equator," which gives a complete and ample hot water service at bath, washhand basin, and scullery sink at surprisingly short notice and at trifling cost. With the full gas supply of 55 c.ft. per hour adequate supplies of hot water for domestic use can be drawn off at any hot water tap within 10 minutes of lighting the gas, and sufficient for a hot bath in 40 minutes starting from cold, with any number of baths to follow at 40-minute intervals. The thermostat cuts down the gas consumption to under 2 c.ft. per hour, which maintains the temperature until hot water is drawn off.

A range of the latest type of Injector-Radiator gas fires is also on view. All these fires are fitted with the new " Beam " radiants, the warmth from which is of a comforting quality never hitherto obtained. Among those on view are examples of the newest designs by Arden Hill in copper and black finish; Davis' " Cleopatra " in pewter and " Antony " in art bronze; Fletcher Russell's " Toledo " in copper and " Hamilton " in oxidized copper electro-plated; Richmonds' " Stuart " in brass with " dog " fender, and " Marlborough " in black with pedestal boiling burner; Wilsons' " Emperor Sunbeam " and " Celestia," and Wright's newest designs, including the very striking " Cresset " in pewter and an example in black Chinese lacquer. Many of the fireplaces are shown with the most up-to-date surrounds.

Details of the goods exhibited by the Radiation firms are given below:

Arden Hill & Co.—" Acme New World " Range No. 188, porcelain enamel finish with " Regulo "-controlled oven, single burner, and bottom-flue outlet. Also four various sizes of " New World " cookers in similar finish. Gas fires in copper and black finish, including the new " Lancet " fire of very attractive appearance.

The Davis Gas Stove Company, Ltd.—The " Shamrock "

geyser and No. 2 " Nautilus " coke boiler. The " Alpine Hot-top " New World Range No. 133, with independently heated plate, finished in " Rado " mottled porcelain enamel. Various sizes of " New World " cookers and a " Cleopatra " gas fire in pewter finish, together with the Davis well-known " Antony " model gas fire in art bronze.

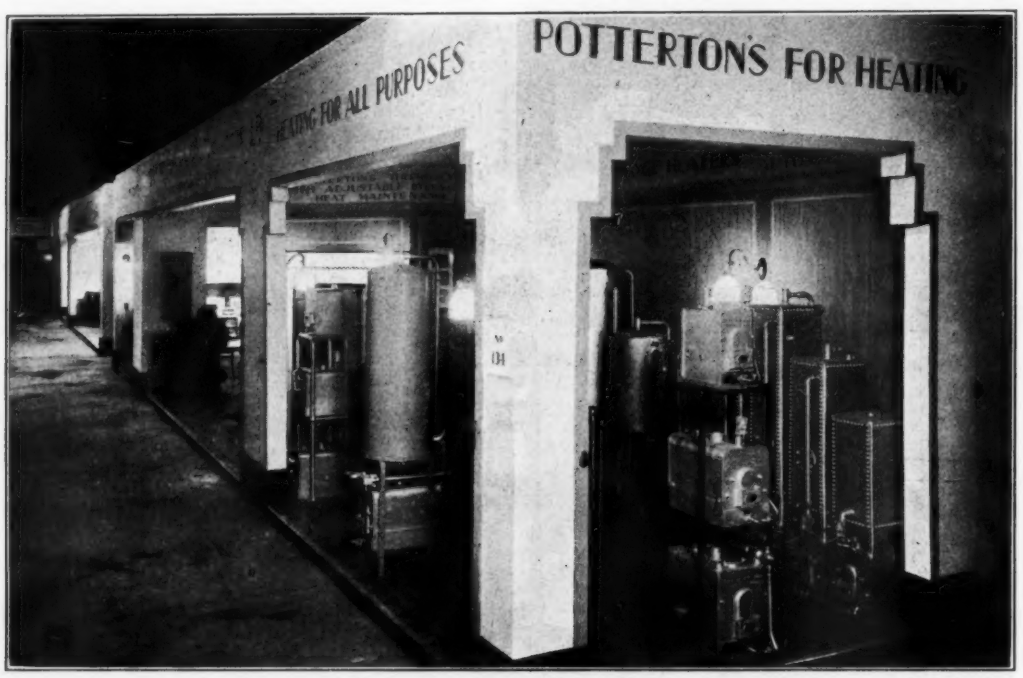
Fletcher Russell & Co., Ltd.—A No. 166 porcelain enamelled " Queensway New World " gas range with " Regulo " control, and various sizes of " Kingsway New World " cookers. Two representative gas fires—viz., the " Toledo " in copper, and the " Hamilton " in oxidized copper, electro-plated.

Richmonds Gas Stove Company, Ltd., have an example of their new " Equator " boiler shown working, also a " Bungalow " No. 433 porcelain enamel gas range with " Regulo " control, and four " Bungalow New World " cookers in various sizes. The new " Stuart " injector-ventilator gas fire in brass finish, with " dog " fender, and the well-known " Marlborough " gas fire in black, shown with the pedestal boiling burner.

Wilsons & Mathiesons, Ltd., show their W.44 " Wilson New World " range in mottled enamel finish; various sizes of " Wilson New World " cookers, and a special " Emperor Sunbeam Interior " in brass finish. Wilsons also show their new " Celestia " gas fire No. 9.

John Wright & Co., have a special exhibit of their " Sunhot " boiler, under working conditions, together with a " Eureka New World " gas range, No. 122, in mottled enamel finish, with " Regulo " oven heat control. They also show various sizes of the " Eureka New World " cooker in porcelain enamel finish. The new " Cresset " gas fire is also shown in pewter finish, together with a fine example of a black Chinese lacquer-finished fire.

Most of the gas fires mentioned are shown in tiled surrounds and look extremely pleasant.



THOMAS POTTERTON (HEATING ENGINEERS), LTD.,

Cavendish Works, Ravenswood Road, London, S.W. 12.

This firm's display completes an island site, with that of the London Gas Exhibit. It comprises practical demonstration of various forms of gas-heated hot water supply apparatus thermostatically controlled, and also a small system of low-pressure hot water heating as an example of the eminent suitability of gas for this particular purpose.

For the working systems for hot water supply there is in one case a " Victor " complete apparatus, No. 931.SJ., giving constant hot water supply for household or any trade purpose. This apparatus, being fitted with insulated and enamelled jacket and a " snap-action " positive-control thermostat whereby the gas is extinguished at the burner and re-ignited by the pilot jet when drawing water, leaves the system in constant use under the most economical and convenient conditions. This set is fitted in a tiled opening, with a Sugg all-enamel " Berkeley " cooker, and forms a useful example of modern equipment for a town house of the small type.

A second example of constant hot water supply is provided in the form of a No. 921.LJ. " Victor " complete apparatus which, while having the advantage of an insulated jacket, is fitted with a standard thermostat with luminous burner, giving proportionate by-pass consumption to maintain the heat required for secondary circulation, a towel drier, &c.—a factor of considerable importance in houses where delivery of hot water at remote points and airing for linen cupboards is required. The system adopted is an example of the latest practice in hot water service for household, trade, and other uses, and demonstrates the arrangement required for flats, bungalows, or any form of single-storey building where the head of water is extremely limited. The " Victor " complete apparatus, having a high-temperature flow circulation, enables the heating of a towel-rail, or even one or two small radiators, at the same floor level to be accomplished to the best advantage. A No. 19 " D " series " Victor " boiler, having a rod thermostat, whereby variable circulating temperature can be obtained, is installed in conjunction with two modern radiators, demonstrating the principle upon which an efficient arrangement of low-pressure gravity hot water heating can be secured.

A display of the insulated storage system, with positive-control thermostats and the alternative luminous type burner for slight heat maintenance, where secondary circulations are in use, adds interest to the stand. There is also a combination of gas and coke apparatus, consisting of a " Domestikatum " boiler and a No. 921 set. This arrangement; which provides an open fire boiler grate for the winter months, for small private houses, is put forward with every confidence. Much other apparatus finds a place upon the stand—a feature being made of the automatic control devices, to which the utmost importance is attached by the firm. Automatic control makes it feasible with the " Victor " system of gas boilers, of which rapid heating is one of the big points, to provide ample margin of capacity for the thermostats to work upon.

MISCELLANEOUS EXHIBITS.

E. A. Denyer (1, Marylebone Road, N.W. 1) are showing examples of gas cookers of the Flavel type, and Beeston " Robin Hood " coke boilers. Nearby is the stand of the Eagle Range and Grate Company (127, Regent Street, W. 1), who are exhibiting the " Eagle " coke grate for the first time.

There is a good display of gas water heaters of all types. The Ruud Manufacturing Company, Ltd. (90, High Holborn, W.C. 1), are demonstrating their automatic appliances which are designed to give constant hot water at every tap on the premises; while New Geysers, Ltd. (25 and 27, Addington Square, S.E. 5), have an excellent display of their specialities, among which prominence is given to the " Super Reliance " bathroom geyser. A demonstration of Lambert water heaters, with their white tile appearance, is to be seen on the stand of White Tile Heaters, Ltd. (201a, High Holborn, W.C. 1).

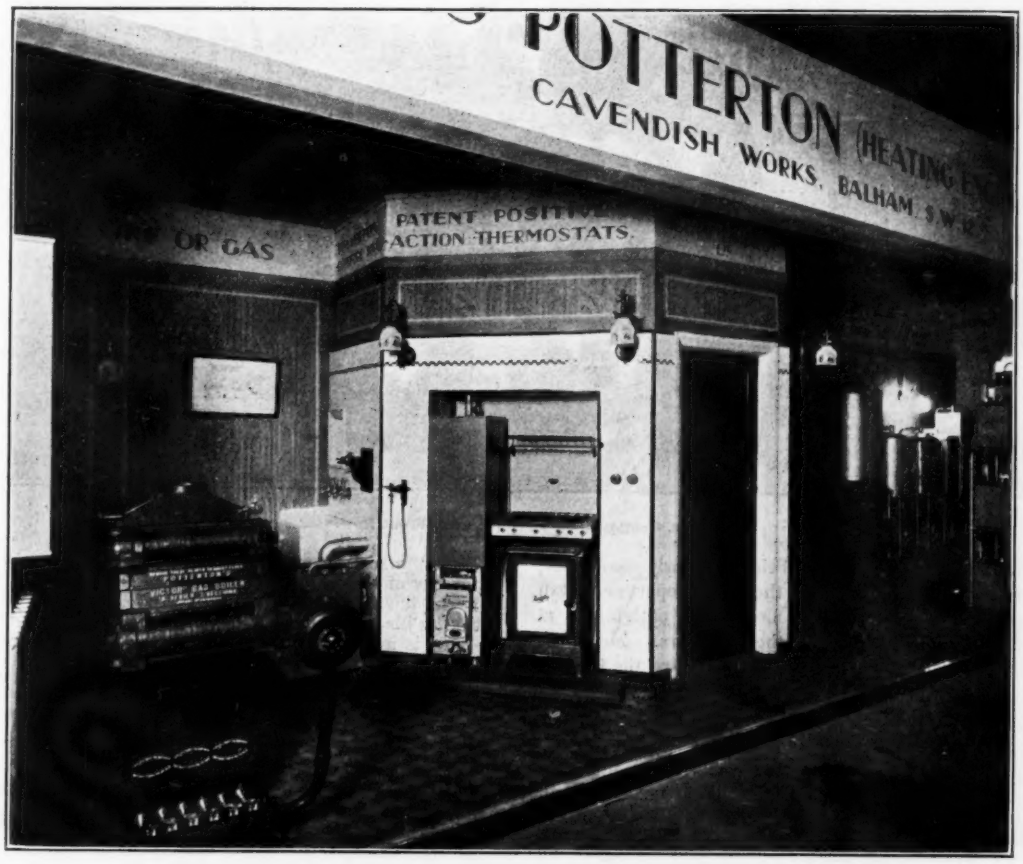
The Wonder Washer Company, Ltd. (131, Victoria Street, S.W. 1), are exhibiting their gas-using model, for which it is claimed that threepennyworth of gas will do a whole week's washing for a family of six in one hour.

FALK, STADELMANN & CO., LTD.

Falk, Stadelmann & Co., Ltd., show a wide and varied range of their " Silo " gas fires; these are finished in various colours to harmonize with surroundings and furnishing schemes. The " Focus " portable gas fire is of great interest—its low consumption and easy adjustment being points for consideration, while the enamelled finishes are very attractive; another point which recommends itself to the potential purchaser is its portability.

A range of " Bakerloo " and " Reliable " gas cookers is being shown, and to the housewife of to-day, who considers the appearance of the kitchen almost as much as the appearance of her drawing room, their smart structure is a great appeal. They are extremely easy to clean, being finished in grey enamel.

In conjunction with the cookers, the " Auto-Kook " can be seen, which device controls the temperature of the oven. Another new invention is the " Rapid " gas lighter, which dispenses entirely with the use of matches. When the cooker



AT THE IDEAL HOME EXHIBITION.

is required for use, the lighter, being attached to a flexible tube, will reach any of the burners, including the oven. The whole thing is extremely compact.

An attractive display of gasfittings and candelabra fittings complete with "Veritas" mantles and burners is another item of interest, and the housewife has a choice of direct or indirect lighting units, which include bowls and the latest vogue in artistic panel fittings.

EWART & SON, LTD.

The special feature of the display of Ewart & Son, Ltd., consists of complete bathrooms at prices to suit modern demands, and in colour as well as in white. These bathrooms enable visitors to test and prove for themselves the advantages to be obtained from Ewart's geysers. The hot water service is provided from the firm's "all-point" "Califont," which supplies hot water to any number of taps, in addition to the bath.

Time-Honoured Service with the Davis Gas Stove Company.

Mr. Goatley is on Extreme Left, Front Row.

On Friday, March 14, following their half-yearly conference, the travellers and senior members of the Sales Department staff of the Davis Gas Stove Company, Ltd., were entertained at dinner at the Hotel Metropole by the Directors. Mr. Cyril Davis proposed the health of Mr. George Goatley, the G.O.M. of the firm, who was the guest of the evening. The speech Mr. Goatley made in response showed how unimpaired are the faculties of this one-time Davis representative, who is 87 years of age, has been with the Davis Company for 46 years, and is still (by his own choice) "on active service."

This is a photograph of the Bognor Gas Exhibition, in 1905, which shows Mr. Goatley 25 years ago, when, at the age of 62, he was still on the road for the Davis Gas Stove Company.

North British Association of Gas Managers.—The Spring Meeting of the Association will be held on Friday, April 11, in the Victoria Hall, Sinclair Street, Helensburgh. The chair will be taken at 11.30 a.m., when the Provost, Mr. R. R. Herbertson, will formally welcome the Association to Helensburgh. The President, Mr. David Fulton, will deliver an address. By invitation of the Provost, Magistrates, and Town Councillors of the Burgh of Helensburgh, members will be entertained at lunch in the Victoria Hall. Those present are invited to visit the Helensburgh Gas-Works during the afternoon.

Hotplate Efficiencies and Oven Ventilation.

By H. T. Angus, Ph.D., M.Sc., of the Parkinson Stove Company.

[Paper before the London and Southern District Junior Gas Association, March 21—the President, Mr. F. S. Larkin, in the Chair.]

Thermal efficiency may be defined as the proportion of available heat which is usefully employed.

Combined water heating appliances, where the burner and water chamber are inseparable, such as geysers and circulators, have fairly definite thermal efficiencies over a considerable variation of loading, and thermal efficiencies may be tested by methods similar to the standard methods of testing gas calorific values. In these cases the heating area and flue spaces are constant in size, and efficiency is affected mainly by the quantity of excess air drawn into the appliance. The heat capacity of the machine also does not affect the efficiency after normal running conditions have been established. Thus, if two different observers are testing such an appliance at its rated capacity, the only significant point over which their tests might differ would be the type of flue with which the machine was fitted, and it is suggested that this should be standardized as one 2-ft. length of flue pipe terminating with a baffle.

These conditions do not obtain in the case of domestic boiling burners. The same burner will give appreciably different thermal efficiencies (1) with pans of different sizes and types; (2) with different gas consumptions; and (3) with different top bars. Dealing with these in order, the effect of using pans of different sizes is very marked, the chief causes being (*a*) the different thermal capacities, and (*b*) the different areas exposed to the hot gases. Thermal capacity of the pan, while rarely quoted, is an important factor. If we consider a pan 8 in. diameter by 4 in. deep of metal $\frac{1}{8}$ in. thick (9·45 c.in.) the weight of it in different metals would be:

Aluminium	0·91 lb.
Copper	2·93 lbs.
Cast iron	2·46 lbs.

and the water equivalent for—

Aluminium	0·192 lb.
Copper	0·278 lb.
Cast iron	0·32 lb.

In other words, if using 5 lbs. of water as a standard quantity, there is a possible 2 p.ct. difference in pans of the same size but different materials.

It is hardly necessary to emphasize that thermal efficiencies will also depend upon the diameter of the pan used. The following tests were carried out with 8 in., 9 in., and 13 in. diameter pans with 5 lbs. water, and the results corrected for the water equivalent of each pan. The burner was a 3-in. drilled type on a Standard cooker hotplate—each test started with the bars and burner cold and with a consumption of 17·3 c.ft. per hour (470 B.Th.U. gas) 3 in. W.G.

8 in. diameter	44·6 p.ct.
9 in. ,,	48·8 p.ct.
13 in. ,,	52·1 p.ct.

The difference in the above figures is due solely to the different pan diameters.

It will be observed that the increase in efficiency falls off very rapidly with increasing diameter, and in this connection we will now consider the effect of the gas rate.

In a boiling burner taking 17 c.ft. per hour under an 8-in. pan (area 50 sq. in.) an efficiency of approximately 45 p.ct. is attained, and a geyser burning 150 c.ft. per hour with 1100 sq. in. of heating surface gives approximately 75 p.ct. efficiency. Although the efficiency of the boiling burner is lower than that of the geyser the amount of heat passed per unit area is actually 30 p.ct. more, because a considerable portion of its 50 sq. in. of area is actually heated by flame contact, whereas no flame contact occurs in the geyser.

The greatest obstruction to the transmission of heat through cool metal walls is the formation of a thin layer of stagnant gas which acts as an insulating envelope against convected heat, unless broken by high temperature or velocity, and the relatively high transmission from a boiling burner is due to the considerable area of flame contact when compared with the total area available. The figure of 30 p.ct. increased heat transmission per unit area for a boiling burner applies to an 8-in. pan where probably not more than one-third the total area is subjected to flame contact. It will be interesting to estimate roughly the effect of added further area—without flame contact.

In the previous table it is stated that

8 in. diameter	50 sq. in.	gives	44·6	p.ct.	efficiency
9 in. ,,	64 sq. in.	,,	48·8	,,	,,
13 in. ,,	133 sq. in.	,,	52·1	,,	,,

In other words, for every 100 heat units supplied, the first 50 sq. in. absorb 44·6, the next 14 sq. in. absorb 4·2, and the next 29 sq. in. absorb only 3·3; and any further increases in size will show very small increases in efficiency. This has been dealt with at some length to indicate the importance of the burner being tested at its rated consumption, since alterations in the consumption will affect the degree of flame contact, which is the principal factor in the efficiency of heat transmission.

The boiling burner itself cannot be considered as a unit; the top bars are actually of considerable importance. If an 8-in. pan were suspended over a 3-in. burner without any under support the efficiency might rise 10 p.ct. or 12 p.ct. above that when suspended normally on the top bars. The bars impede flame contact and conduct heat away from the pan, and have themselves to be heated up. While, however, the ideal form of support from a thermal aspect may be a minimum number of small points, from a domestic point of view this method may not prove so satisfactory as a less thermally efficient but more stable form of bar.

To sum up the testing of hotplate burners the following points should be noted: For comparison purposes the diameter and water equivalent of the pans should be the same; the rated consumption for each burner should be passed; and the top bars, cornice, and burner should be cold.

By the term "oven ventilation" is meant the removal of products of combustion so that satisfactory flame development is attained.

The air required for complete combustion of 1 c.ft. of gas will vary with the quality of the gas; but an average figure may be taken as 3·8 c.ft. Hence, since, in an oven, the water vapour content is not condensed, the total volume of gas to be vented per cubic foot burnt will be of the order of 4·5 c.ft.—assuming no excess air. In top flue ovens, however, CO_2 content of the flue gases rarely exceeds 3 p.ct., and an oven consuming an average of 25 c.ft. per hour will be discharging some 500 or 600 c.ft. per hour of products of combustion and excess air through its flue. These flue gases may leave at a temperature of 400° Fahr., at which temperature 1 c.ft. of gas will occupy approximately 1·7 c.ft., so that the flue orifice must be large enough to pass some 800 or 900 c.ft. of gas per hour with the hydrostatic pressure available.

If in an oven 21 in. high we have a column of heated gases (say) 16 in. high, at a temperature of 400° Fahr., the hydrostatic pressure exerted on the top of the oven can be estimated:

One cubic foot of air at N.T.P. weighs 0·0807 lb., whereas 1 c.ft. of air at 400° Fahr. weighs only 0·046 lb. A column of air 1 ft. by 1 ft. by 1·33 ft.—*i.e.*, 16 in. high—will weigh, therefore, 1·33 by 0·0807 = 0·1073 lb., and a similar column at 400° Fahr. will weigh 1·33 by 0·046 = 0·0613 lb.

The column of hot gases is in dynamic equilibrium with the air outside—*i.e.*, is being replenished as rapidly as it drains away. Therefore the difference in weight between the column of hot gases and a similar column of air must represent the pressure exerted by the hot column on the top of the oven. This difference, 0·1073 − 0·0613 = 0·046 lb. per c.ft., is equivalent to a water gauge pressure of 0·0089 in.

It is possible on this basis to estimate approximately the size of flue opening required to maintain these conditions.

Using the formula $Q = a\sqrt{2gh}$

where Q = volume passed in c.ft. per second
a = area of nozzle
g = 32·2 ft. per sec.²
h = head available.

The value "h" requires to be found in terms of the hot gases. In terms of air the head available will be $H \times (da - dg)$,

where H = height of column in feet
da = density of air
dg = density of hot gas

—*i.e.*, height of column in feet multiplied by the difference in density between the air and hot gases. Thus the head "h" in terms of the hot gases $= H \frac{da - dg}{dg}$

where da = 1·00 and dg (400° Fahr.) = 0·57.

$$h = H \frac{1·00 - 0·57}{0·57} = H \times 0·754$$

Substituting in the equation $Q = a\sqrt{2gH \frac{da - dg}{dg}}$

the figures originally given Q = 0·25 c.ft. per second (900 c.ft. per hour).
H = 1·33 ft. (16 in.)

We get: $0·25 = a\sqrt{2g \times 1·33 \frac{1 - 0·57}{0·57}} = a\sqrt{64·4 \times 1·33 \times 0·754}$

$= 8a$

—*i.e.*, a = 0·031 ft.² = 4·46 in.² = 2·4 in. diameter.

The above calculation is necessarily only an approximation, since the contraction coefficients have been ignored, and no

account is taken of energy losses due to change of direction by baffling of the products, and the temperature is assumed to be uniform from top to bottom. Nevertheless, calculations made on this basis are of value, and the results show considerable correspondence to those found in practice.

The hydrostatic gas pressure calculations can be made to show the principle upon which most bottom-flue ovens work. If we consider an oven of the type indicated in fig. 1, filled with

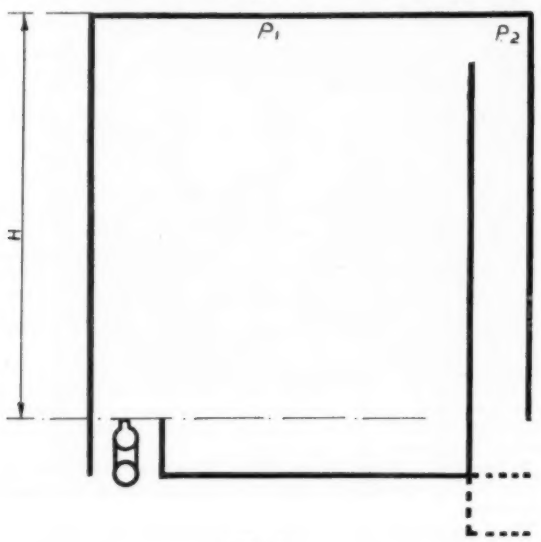


Fig. 1.

a column of hot gases 16 in. high with an average temperature of 400° Fahr., then, as already shown, the hydrostatic pressure p, at the top of the oven will be 0·0089 in. W.G.

Since heat has been abstracted from the gases, the temperature in the flue will be lower than in the oven, (say) 300° Fahr. Working on the same basis as before, the hydrostatic pressure exerted at the top of the flue by a column of gas 16 in. high at 300° Fahr. will be 0·0072 in. W.G. Thus the pressure in the flue is less than that in the oven, and ventilation is made possible.

In an oven of this type the amount of excess air drawn in is much less; there is a more definite circulation of the gases; and the pressure due to flame velocity is not lost as in an ordinary top flue oven. Thus, although the hydrostatic pressure available for venting is less than with a top-flue cooker, the actual margin of safety is usually greater. It will be seen from the above calculations that it is quite possible to obtain satisfactory ventilation even with the flue exit below the burner, since it is not the relative position of burner and flue, but the difference in pressure, that is of importance.

Discussion.

The President said he was sure that they were all very indebted to Dr. Angus for the extremely clear illustrations he had given in regard to the methods employed in the testing of both the boiling burner and the oven. This was, of course, a matter that had been gone into on several occasions. Many years ago a plea was made for a standard test for both the boiling burner and the oven, but those responsible for the carrying out of the tests differed so much in the methods they employed, and could not see the argument of the other men, that the standard test fell to the ground. Mr. Barker laid down a series of tests for the National Gas Council, but owing to the criticism of various other experts, these did not lead to any definite results. Various people proposed one or another test, and in the end things remained very much as they were in the first place. Unless the conditions under which the various tests were made were absolutely identical, there would be differing results from different tests; and this was responsible for the varying efficiencies claimed by various makers, and the varying results obtained from their hotplates and ovens. He himself had referred to this matter some years ago, and it was very interesting to see that Dr. Angus and others were following up the tests on a scientific basis. The President went on to refer to the efficiency of the hotplate bar, saying that he thought that they had gone too far in the direction of efficiency, and had sacrificed thereby utility in certain cases. In a matter such as this he considered that the consumer was the final arbitrator. Various methods were tried in which the hotplate was divided into four sections, and satisfactory results were obtained. In regard to smothering in ovens, Mr. Larkin said that the degree of smothering did not affect the efficiency very much. He would like to ask Dr. Angus how he found their old rule-of-thumb calculation applied in regard to the question of the flue outlet at the top of the oven. They found that one square inch of outlet per cubic foot of oven space was still the right amount of ventilation in that cooker.

Mr. B. G. Maisey (Croydon) asked if Dr. Angus could give them some idea of how to minimize condensation trouble in the lower-vent oven.

Dr. Angus remarked that it was unfortunately a fact that condensation was a necessary evil in the bottom-flue cooker. The products of combustion contained a certain amount of moisture, and the more efficient the use made of the products of combustion in the cooker the more condensation they were going to get. They must aim at getting the condensation to cause as little trouble as possible, for it was impossible to eliminate it entirely, owing to the fact that the cast-iron parts of the cooker caused rapid local cooling of the gases, and not until the iron was hot would there be no condensation forming.

Mr. Maisey: Are the makers taking any steps to minimize this trouble? It is a very serious trouble on the district.

Dr. Angus: We know that it is a serious trouble, and we are doing our best to cope with it.

Mr. H. W. Holgate (Gas Light and Coke Company), in reference to the use of different sized pans on the boiling burners and the ratio between the diameter of the burner and the pans, remarked that Dr. Angus had stated that they were using various sized pans for one burner. Surely they should use a smaller pan in the tests on a smaller burner.

Dr. Angus replied that as a matter of interest they had carried out this test with a 13-in. pan. These tests really had value from the district point of view; they could not lay down standard rules tying the consumer to one size of pan or burner. There was a definite ratio between the size of the burner and the size of the pan, and if too large a burner was used there would be a loss of efficiency.

A Flue for Every Appliance.

Mr. W. J. Westbrook (Gas Light and Coke Company) said that the question of ascertaining the correct area of flue nozzle for oven ventilation purposes was very interesting. After the cooker had been in use some considerable time the interior surface became coated to a certain extent. He would like to ask Dr. Angus with what margin of safety he increased the area. Mr. Westbrook was of opinion that the proper ventilation of gas appliances was long overdue, and that the gas industry were waiting until the electrical people had got all the business before they would fully wake up. Every appliance should have an efficient flue pipe, and that flue pipe should be taken into the open air. There was one part of the flue which was a variable quantity, and in some cases they were even exerting a certain amount of back pressure. There was sometimes an open end to the nozzle, when there was back pressure, in which case they exerted an influence upon the limb of the syphon. In his opinion, that was giving an excess bank of pressure and a deepening of the layer of gas in the oven. In his experience this did not give good results. He was surprised in regard to the reduction in burner efficiency consequent upon a decrease in consumption. He had carried out some tests a few years ago, and he found a higher efficiency with the smaller burner, which he attributed to the larger cover the vessel gave to the flame. The heat could not escape as quickly from the smaller flame as from the larger. The efficiency with a 2-in. ring was 3 p.ct. or 4 p.ct. higher than with the 4-in. ring. Mr. Westbrook remarked that he must support what the President had said in regard to the question of utility *versus* efficiency. It must, of course, be the aim of the gas industry to get the highest efficiency out of their appliances possible, because they were faced with very keen competition which certainly would not grow any less, but, on the question of hotplate bars, he said that vessels had toppled over on account of the cutting of the bars. This was a very important point; ease of manipulation of vessels must always be taken into consideration when designing hotplate bars.

Dr. Angus, in reply, stated that from the domestic point of view the straight hotplate bars were to be preferred. Dealing with the question of testing cookers, he stated that he always made a point of sealing up the cooker both inside and outside with cement. In his experience of cookers coming from the district, he had not found the flues appreciably gummed up. In testing a new unsealed cooker it was possible to get a false idea of the margin of safety, on account of the fact that there were leaks through the joints. They had been working upon a margin of safety of 60 p.ct. overload. In regard to the matter of smothering, he said that 99 p.ct. of this was due to incorrect fitting of the flues. It was not worth the trouble of fitting a flue if there was going to be a back draught, and he maintained that, if they were going to ventilate a cooker in the same way as they did a geyser, they should fit a baffler. It was no use taking the flue pipe outside the wall where the wind blew straight on to it. In regard to burner efficiency, Dr. Angus agreed that the small burner gave a greater efficiency than the large burner, but reduction in efficiency occurred when a large burner was used with a small consumption.

Machined Rectangular Burners.

A Member inquired whether Dr. Angus had had any results in regard to the high efficiency of machined rectangular burners, and whether there was any relationship between this rectangular type and the ordinary cast one without the machining, because on one or two tests he had carried out he had found that the burners were 1½ p.ct. to 2 p.ct. more efficient if the rectangular orifices were filed and machined.

Dr. Angus replied that in the case of a small burner in one case machined and in another channelled, the former might possibly be more efficient, though he did not think it would be appreciable.

The same Member said that he had tried an ordinary "Rado" burner, and filed it up as near as possible by hand and by machine, and when the orifices were fairly smooth they did allow of a greater velocity and made for increased efficiency.

Mr. Westbrook remarked that in filing the burner the resistance had been altered, which might have accounted for the higher efficiency.

Mr. W. H. Cosh (South Metropolitan Gas Company) said that he agreed with Mr. Westbrook in regard to the filling up of the flue outlet. He had seen some completely closed, and the burner smothering out; that type of cooker always had a top flue. He

asked if Dr. Angus could tell them what added efficiency there was with a bottom flue outlet.

Dr. Angus replied that the standard efficiency tests showed that the consumption with the bottom flue oven was 22 c.ft. per hour and that with the top flue oven 30 c.ft. per hour. That indicated a definite saving which was obtained as a result of the bottom flue. As far as blocking of the flue was concerned, this was as likely to occur in top-flue ovens as well as in bottom-flue ovens, and where it did occur, one type would be as dangerous as the other.

Condensation in Bottom-Flue Ovens.

Mr. W. R. Moger (Tottenham and District Gas Company) stated that condensation was very serious in the case of the bottom-flue ovens. He would like Dr. Angus to let them know whether there was a possibility of that condensation being done away with by adapting a top as well as a bottom flue, as there was one cooker they knew of which had both top and bottom flues.

Dr. Angus replied that the use of a top flue did reduce condensation to some extent, but it did not do away with it entirely. The top-flue cooker would give condensation under similar conditions.

Mr. C. A. Masterman (Gas Light and Coke Company) said that Dr. Angus had given them no figures in regard to hotplate burner efficiency. He inquired what was the effect of polished or black pots in connection with burner efficiency. He had carried out some practical tests in an oven which for certain reasons had a polished interior surface, and found that it was impossible to cook in this oven. The surface was then blacked over, after which the cooker functioned perfectly. This was an interesting point in regard to the enamelling of the insides of ovens. They had carried out some tests some time ago with hotplate bars; but they must be practical in these matters. Just making calculations would not be sufficient; they must follow up afterwards with tests, because one could never be certain when making calculations whether one was not ignoring important points. Turning to the question of oven flue outlets, Mr. Masterman said that there was bound to be some condensation in a bottom-flue oven, owing to the fact that they started with very little excess air. He was, however, hoping to make some tests soon in regard to the effect of a top air inlet and a top flue outlet.

Dr. Angus said that he was interested to hear that one could not cook in an oven with a polished interior surface. It might be, he suggested, something to do with the radiation of the sides, but he was not acquainted with the fact before.

Commenting upon a point raised in connection with the fixing of cookers in recesses, in which a hood was fitted whereby the hotplate as well as the oven was ventilated, Dr. Angus said that this would be a great improvement.

Controllable Flues.

Mr. J. H. Goldsmith (South Suburban Gas Company), in regard to the cooker with controllable flue, asked what was its comparative efficiency as compared with the cooker of the bottom-flue outlet type. Could Dr. Angus give them any comparative figures as to the advantage of having a throttle outlet marked?

Dr. Angus replied that in cases such as these it would be desirable to be able to control the air inlet at the same time. To have the same flue outlet area when the gas was turned down as when it was fully on certainly seemed unnecessary. He had tried two or three types of top-flue ovens in an endeavour to get them as efficient as the bottom-flue variety.

In reply to a question as to whether the outlet of the flue should be taken well above the eaves, Dr. Angus stated that it should work satisfactorily, though it really depended upon the position of the particular house in relation to its neighbours. It was important to prevent downdraught; and they were depending upon the vertical height inside the house. It was difficult to say what type of cowl would be required, however.

Mr. T. H. Prater (Margate) said that he would like Dr. Angus to express an opinion as to the conditions of ventilating an oven by means of a flue pipe at the bottom. Appliance manufacturers were in rather a peculiar position, he thought, at the present time, for in point of fact the products from the hotplate were far more than from the oven. It was surely better to leave the oven alone. In his experience the ventilation of ovens was chiefly necessary on account of the products arising from the cooking, these products becoming offensive owing to dirty interiors. It seemed to him that gas companies did not advance the use of double tins for cooking as much as they might do.

Dr. Angus said that the cookers that were being turned out by the manufacturers were more or less satisfactory; but they were at the mercy of the people who fitted the cookers. On the subject of double tins, he would say offhand that the efficiency would be slightly less with them, though he had really no experience of them.

Mr. Westbrook emphasized the importance of the fact that no flue should be taken away without a break. It was a thing that was very easily done, but no appliance should ever be fitted in this way.

Dr. Angus agreed; and in reply to a question regarding open-ended **T**'s, stated that he did not regard these as satisfactory. They were, in fact, not as safe as they appeared.

The President said that they knew that when cookers left the makers the doors and spaces were nicely fitted up; but after two or three years on the district the frame was sometimes no longer fitting the door. He asked what was the effect of this on the bottom-flue oven.

Dr. Angus replied that, although there was a distinct measure of ventilation, it did not prevent the bottom flue working. The maximum amount of pull from the bottom flue would still be employed to ventilate the oven in the normal way.

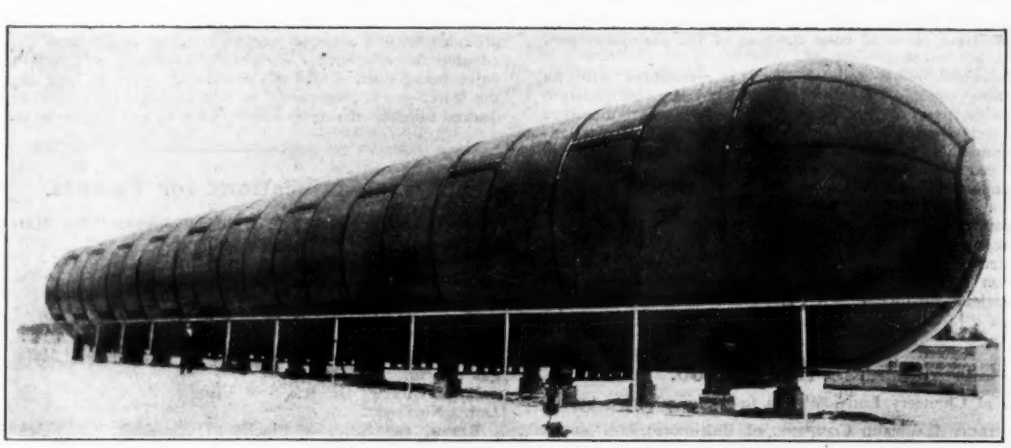
Vote of Thanks.

The President, in conclusion, said that the Association were indebted to Dr. Angus for his address, which had resulted in an interesting discussion. There was one further point he would like to make—it was up to the manufacturers to turn their attention to some utensils which could be bought at a reasonable price. In that, he thought, would lie the success of the gas industry in the future. He then called upon Mr. Westbrook to propose a vote of thanks to Dr. Angus for his paper.

Mr. Westbrook, in proposing a hearty vote of thanks, said he thought they would all agree that they owed a great debt to the scientific side of the industry during recent years, and they witnessed the favourable results to-day in the tremendous improvements in cooker construction. He knew that increased efficiency in the hotplate would not be beyond them; and if they could not improve the efficiency of the burners themselves, there was a lot to be said for improvement in utensils, though it was, perhaps, asking at lot of manufacturers to turn their attention to this matter. In conclusion, Mr. Westbrook said that he would like, on behalf of the Association, to thank Dr. Angus for coming there on that occasion.

Mr. Moger seconded the vote of thanks, which was carried with acclamation.

Pressure Gas Storage.



This pressure holder was recently installed at Waukesha, Wis., and is the largest in the United States. It is 185 ft. long, 25 ft. in diameter, and has a capacity of 354,000 c.ft. of gas under 50 lbs. pressure. It is used as a stabilizer and reserve on the high-pressure gas line from Race, Wis., to seven cities, as far as 70 miles away.

Register of Patents.

Liquid Purification.—No. 299,765.

Hansen, C. J., and Heinrich Koppers Aktiengesellschaft, both of Essen.

No. 26,782; Sept. 18, 1928. Convention date, Oct. 31, 1927.

It has hitherto been proposed to remove ammonia and sulphuretted hydrogen from gases by scrubbing the gases with iron thiosulphate liquors which may also contain iron polythionates, so that the following reaction occurs:

$$FeS_2O_3 + 2NH_3 + H_2S = FeS + (NH_4)_2S_2O_3$$

It will be seen that it is only possible to free the gases completely from ammonia, and particularly sulphuretted hydrogen, when they are present in the ratio of $2NH_3 : 1H_2S$.

In the purification of coal distillation gases there is usually present an excess of sulphuretted hydrogen over and above this ratio, and, moreover, the ratio in which the gases are present varies considerably.

It is an object of the invention to provide a process for removing ammonia and sulphuretted hydrogen which will be effective no matter what the proportions may be, and more particularly when there is an excess of sulphuretted hydrogen over and above that corresponding to the above ratio.

According to the invention, a process for removing ammonia and sulphuretted hydrogen from gases comprising scrubbing with iron thiosulphate liquors is characterized in that sulphuretted hydrogen in excess of the ratio $2NH_3 : 1H_2S$ is removed by a separate liquor comprising in suspension or solution a compound of iron capable of removing sulphuretted hydrogen independently of ammonia (preferably an iron polythionate solution or an iron hydroxide suspension).

No. 301,061.

No. 26,860; Sept. 19, 1928. Convention date, Nov. 24, 1927.

This invention comprises modifications of the process claimed in the foregoing patent. It is convenient first to remove ammonia from the gases by condensation or dissolution, as distinct from combination, so that the ammonia-free gases may be treated to eliminate such part of the sulphuretted hydrogen as cannot be eliminated by the metal thiosulphate liquor, and the ammonia previously removed is then returned to the process before the scrubbing operation with metal thiosulphate, so that it enters into combination with the thiosulphuric acid freed by sulphuretted hydrogen from the metal thiosulphate in the scrubbing operation. The gas must not only be cooled, but washed with water in order to remove all the ammonia, and the resulting ammonia liquors are too dilute for use in the process, and must be concentrated; and this involves considerable expense and trouble. It is an object of this invention to avoid this difficulty.

Stuffing Box and Piston Packing.—No. 325,219.

Gas Light and Coke Company, of Horseferry Road, S.W. 1, and Bibbs, F. M., of Beckton Gas-Works.

No. 33,075; Nov. 12, 1928.

This invention relates to joint packing means for use in stuffing boxes, and more particularly for use with pistons or valves of the type which in their operation engage or come into contact with ports of openings, as is the case in fluid-operated apparatus such as hydraulic machines. The invention has for its object to provide joint making packing means which will prevent leakage of the fluid and at the same time allow of easy working of the associated part or parts.

The packing, which is of annular form, is associated with an expansible member capable of being subjected to endwise pressure by pressure gas or pressure liquid admitted between two members so as to cause relative displacement thereof and consequent expansion of the expansible member. One of the said members is so arranged as to produce the endwise pressure on the expansible member, thereby causing the packing to form a fluid-tight joint between associated parts. The member, which may be of leather, rubber, or of suitable composite matter of an expandable nature, and to which the endwise pressure is applied, may surround the packing or may be disposed internally thereof. The packing means may consist of hard composition rubber, such as ebonite, vulcanite, and the like, white metal, or lead capable of being expanded while still resisting hard wear.

Gas Washers.—No. 325,300.

Jensen, C. A., of Chancery Lane, W.C. 2 (a communication by the Bartleit Hayward Company, of Baltimore).

No. 34,219; Nov. 21, 1928.

This invention relates to liquid and gas contact apparatus in which gases may be washed to remove solids. There is arranged around spraying and pumping means baffling means comprising a series of plates located so as to form pockets open at their inner ends adjacent to the spraying device and extending to the wall of the casing, into the open ends of which pockets liquid from the spray device directly passes, together with gas. The upper portions of the pockets are advantageously provided with a member through which gas passes in one direction, and liquid passes in the opposite direction, and the plates forming the side walls of the pockets may be perforated and arranged angularly in relation to each other. Combined with the pumping and spraying element, means may be employed for forcing the gas into the pockets, and also means for throwing liquid transversely through the flow of gas after it passes through the baffling means. The bottom of the pockets is suitably formed by an annular plate extending around the lower edges of the pocket plates, this plate being suitably formed to deflect towards the spraying and pumping device gas passing upwardly, and also to direct towards the open ends of the pockets water passing downwardly.

Incandescent Combustion.—No. 325,568.

Premix Gas Plants, Ltd., and Docking, A., both of Westminster.

No. 34,061; Nov. 20, 1928.

According to this invention there is disposed in the path of the bunsen flame of an apparatus for the combustion of gaseous mixtures an arrangement of high heat-resisting and non-oxidizable metal, such as nickel or nickel alloy, which is adapted to be raised to incandescence by the flame. A combustible mixture of gas and air may be divided up into a large number of separate streams by being passed from the inside to the outside of an arrangement of thin ribbon-like metal strips, discs, or annulata which are of suitable width, located side by side, and alternately plain and corrugated, the gaseous mixture being ignited on the outer surface of the strips where it burns with a bunsen flame. The material which is raised to incandescence by the flame may be composed of one or more sheets of nickel gauze, or of nickel gauze wire wound into the form of a spiral or coil and located around the strips, discs, or annulata in the path of the bunsen flame.

Complete Gasification.—No. 325,437.

Tully, Sons, & Co., Ltd., and Tully, C. B., both of Newark-on-Trent.

No. 15,208; May 15, 1929.

This invention relates to gas generating apparatus of the type wherein there are arranged above a gas generating chamber two or more fuel retorts designed to permit of a more uniform heating of the fuel therein than is possible in a single larger retort, and in which air is blown through the fuel in the gas generating chamber to raise it to a state of incandescence. The blow gas passes off through a flue or flues independent of the retorts to the external atmosphere or elsewhere, after which the air supply is cut off, and steam is passed into the incandescent fuel to produce water gas, which is passed through the fuel in the retorts, where it is carburetted.

It has been found in practice, state the patentees, that, when using gas generating apparatus of this kind, the water gas from the generating chamber passes more easily and quickly through one of the retorts than through the other, thus resulting in unequal carbonization of the fuel in the retorts and in the partially coked mass tending to remain in the retorts instead of gradually descending into the water gas generating chamber below.

The present invention has for its object to provide means for ensuring that the water gas from the generating chamber shall pass equally through the fuel in the retorts. For this purpose, each retort is provided with a separate valve-controlled outlet, and the valves are adapted to be opened and closed periodically and in sequence, each valve being open while the remaining valve is kept closed so that the water gas is constrained to flow through the retorts in turn. Any desired number of retorts can be used to suit requirement.

Applications for Patents.

[Extracted from the "Official Journal" for March 19.]

Nos. 7683—8472.

Chandler, D.—"Gas-heated bread-baking ovens." No. 8188.

Gourley, H.—"Coke oven doors." No. 8109.

Hart, W. W.—"Gas or air reversing valve for gas-fired furnaces." No. 8214.

Illingworth Carbonization Company, Ltd.—"Method of firing gas retorts." No. 7947.

Illingworth, S. R.—See Illingworth Carbonization Company, Ltd. No. 7947.

Keith, G. (Keith & Blackman Company, Ltd.).—"Gas heating systems." No. 8126.

McRobbie, W.—"Gas meters." No. 7997.

Milne's Meters, Ltd.—See McRobbie, W. No. 7997.

Premix Gas Plants, Ltd.—"Rotating drums for drying or roasting malt, grain, &c." No. 8315.

South Metropolitan Gas Company.—See Chandler, D. No. 8188.

Ward, W. E.—See Hart, W. W. No. 8214.

British Gas Light Company, Ltd.

Annual General Meeting.

The Annual General Meeting of the British Gas Light Company, Ltd., was held at the Chief Office of the Company, 2, The Abbey Garden, Westminster, S.W. 1, on Wednesday, March 26—Mr. HENRY WOODALL, M.Inst.C.E., Chairman and Managing Director, presiding.

The SECRETARY (Mr. A. J. Mumford) read the notice convening the meeting and the Auditors' report. The report of the Directors and the statement of accounts for the year ended Dec. 31, 1929, were taken as read.

The Chairman's Address.

You will, I presume, take the report and accounts as read. This is the second annual meeting held in March, and the first dealing with a complete year's working to December. Formerly our year ended in June, but now in December conforming to the usual practice.

We cannot, however, quite compare our accounts with those of other gas companies as we are holders of electricity and water undertakings as well as gas. Further, some of our undertakings are statutory and some non-statutory, and we from time to time buy, and sometimes sell, stations. In 1922 we sold, for adequate reasons and for an adequate price, our Potteries undertaking. Since then we have sold none of our works, but have obtained control of a number of undertakings, one being Swanage, where we supply both gas and electricity, and another Westgate and Birchington, where we supply gas and water. It will interest you to know that in 1922 our dividend was 7 p.ct., as against to-day's dividend of 7½ p.ct., and our reserves, including the carry forward, were £279,164, and are now £432,512. In addition to the reserves mentioned, we have a considerable amount of valuable freehold property, quite apart from the works, in the shape of showrooms, offices, stores, managers' houses, and workmen's cottages.

These figures prove that the purchase money from the Potteries station has been wisely invested, and I hope you will agree that the spreading more widely of our capital enhances the value of our undertaking.

RESULTS AT CHIEF STATIONS.

With regard to our chief stations, at Hull there was an available profit of £65,769. Of this, £49,661 was absorbed in paying the Parliamentary interest for the year; £13,451 has been added to the reserve fund—this we were able to do under provisions of the Gas Undertakings Act of 1929—and £2656 was carried forward. The repairs and maintenance of works and district amounted to approximately £100,000, which enables us to keep all our plant in a high state of efficiency. There is a new item charged against our Hull revenue this year of £4474, which amount is credited to a pension fund which is being created at this station.

At Norwich the available profit was £52,586, and, as at Hull, all necessary repairs were carried out, and everything, both in the works and the distribution system, is in first-class condition.

At Trowbridge we more than earned our Parliamentary interest; and at Holywell the profit, though not sufficient to pay the full Parliamentary interest, is larger than for many years past.

The dividends and interest from Subsidiary Companies amount to £18,000. This figure will be considerably increased next year, as only one half-year's dividends from the three largest acquisitions made during the year—namely, the Westgate Gas Company, the Westgate Water Company, and the King's Lynn Gas Company—were brought into the account. All our Subsidiary Companies are doing well, but it will be understood that in the first year or two in many cases somewhat large expenditure has to be made to put them into the condition we require.

You will notice that the form of account has been somewhat altered, and there are one or two special entries, which are made to conform to the new Companies Act.

One of these entries is "Goodwill." We first thought of writing this out, but on consideration it was felt to be an advantage to be able to point out that, out of a capital of over £2,000,000 sterling employed in our undertaking, £6500 only is allocated to goodwill.

The item "revenue expenditure in suspense" perhaps calls for some explanation. It comprises expenditure which we consider we are justified in spreading over a number of years; in the main, it is the cost of alterations and additions to these premises, which expenditure is being written out over the period of the lease. Increased accommodation was urgently required owing to the large number of Companies now controlled from this office.

The year has been one of steady work and good progress. Despite severe electrical competition the sale of gas has increased by more than 3 p.ct. during the year. The position of the gas industry is very sound, and although increased consumption is not very rapid, it is regular; and we are selling an enormous amount of new and improved apparatus. The manufacturers of gas cookers, fires, and heating apparatus have made, and are still making, great efforts and succeeding in producing better and more economical plant. One of the reasons our increases are not larger is that modern heating apparatus is better designed and more efficient than that it replaces.

GAS LIGHTING.

Gas lighting—a still very important factor with us—is increasingly efficient. In spite of State-aided competition, the Coal Bill, and other troubles, I am not afraid of the future. The industry is a live one, and in the National Gas Council we have a very capable body, splendidly officered, always looking after our interests. We do not fear electrical competition—there is room for both of us—but we do feel strongly that where the electricity works are in the hands of the local authority, as they are in nearly all the towns we supply with gas, we are not given fair treatment. Take, for instance, street lighting. Gas is the cheaper and better illuminant for this purpose. In the London area, where electricity is in the hands of companies, and there is fair competition, the great bulk of the street lighting is by gas. At Tottenham, where I am the Chairman of the Gas Company, we supply 92 p.ct. of the street lighting, whereas in Norwich we have hardly any, and at Hull it is threatened

Then another injustice is that on some of the council estates gas is not allowed for any purpose, in spite of the demands of the tenants. This appears to me entirely unjustifiable, especially as these estates are built at the expense of the ratepayers, and we are among the largest ratepayers in the towns we supply. We are not content that this injustice should continue and shall leave no stone unturned to rectify it.

Some of you have no doubt read a speech made by Mr. Arthur Hayday, M.P., in October last. Mr. Hayday has practical experience of gas, and is Vice-President of the National Union of General and Municipal Workers, and I should like to give you a short quotation from his speech:

> There is every whit as much romance and wonder in the conversion of the coal formed millions of years ago out of the primeval forests into the drugs, dyes, disinfectants, fertilizers, oils, and motor spirit, and scores of fine chemicals, as well as into gas and coke which represent 75 p.ct. of the coal's heat energy, as there is in getting only 20 p.ct. of the heat energy out of it in the form of electricity and losing all the rest and the chemical wealth as well.

He then goes on to specify advantages of the use of gas, and concludes:

> . . . Are all these to be forgotten or overlooked, and are the hundred thousand workers engaged in the gas industry and the many thousands employed in ancillary trades to be thrown on the scrap-heap, in order that the same services shall be rendered by electricity—at greater cost, with a huge waste of coal and chemicals, and with a smaller amount of labour employed?
>
> To ask the question is to answer it—but the trouble is that no one outside the gas industry seems to know the facts or, if they do, to think seriously about them and their inferences.

The speech is a most admirable one and should be read by all those interested in gas.

MR. THOMAS GLOVER'S RETIREMENT.

There is one domestic matter I must refer to—namely, that, after 28 years' service, Mr. Thomas Glover, Engineer and Manager of our Norwich Station, asked permission to retire. Mr. Glover's exceptional services to the Company are too well known to you to need recapitulation, and I am sure you will agree the retiring allowance which has been made to him has been well earned, and we trust he may long enjoy it. We were fortunate in having in the service of the Company an Engineer, Mr. C. R. Armitage, fully qualified to succeed to the position at Norwich.

In conclusion, I trust you will be satisfied to receive the same dividend as for some years past, while at the same time knowing the stability of the Company has been increased by the addition during the year of £30,000 to the reserve and pension funds. These results which we are able to put before you could only be obtained by good team-work. Our pension fund is greatly appreciated, and the provisions we have made for recreation are taken full advantage of, and tend to the pleasant and harmonious relations which exist throughout the Company.

The CHAIRMAN, before putting the resolution for the adoption of the report and accounts to the meeting, said that he would be very pleased to answer any questions anyone might wish to ask.

Mr. J. CHAMBERLAIN said he would like to know if the Company were benefiting in any way due to the De-Rating Act.

The CHAIRMAN replied that this Act did not apply to public supply undertakings. Incidentally, there was one small undertaking—the Yarmouth Chemical Works—that was affected to a slight extent; but this made no appreciable difference.

Mr. LEWIS R. ABBEY-WILLIAMS then seconded the resolution, which was put to the meeting and carried unanimously.

DIVIDENDS.

The CHAIRMAN then moved that the dividend at the rate of 7 p.ct. per annum, *less* income-tax, on the cumulative preference stock, already paid, be confirmed.

This was seconded by Mr. GRAHAM WILKIN, and carried.

The CHAIRMAN next moved that the payment of the interim dividend at the rate of 3½ p.ct., *less* income-tax, on the ordinary stock, be confirmed, and that a final dividend at the rate of 4 p.ct., *less* income-tax, making 7½ p.ct. for the year, be paid on April 4 next.

This was seconded by Viscount MERSEY, C.M.G., C.B.E., and carried.

RE-ELECTION OF RETIRING DIRECTORS.

The CHAIRMAN then moved that Mr. Lewis R. Abbey-Williams and Mr. Graham Wilkin, the retiring Directors, be re-elected. Mr. Abbey-Williams, the Chairman said, was the senior Director and had

an extensive knowledge of the affairs of the Company. He was a very useful Director, and they very much hoped he would be re-elected to continue his work on the Board. Mr. Wilkin's was a name very well-known as a member of the Board ever since the formation of the Company 100 years ago. Father and son had served as Directors for over 100 years, and they were very glad to have another Mr. Wilkin to carry on the traditions of the family.

Mr. A. W. Brookes seconded their re-election, which was carried unanimously.

Re-Election of Auditors.

Mr. Kenneth R. Mackay moved that the Auditors of the Company—Mr. E. Knowles Corrie and Mr. William Cash, Junr., F.C.A.—be re-elected. These gentlemen, said Mr. Mackay, had served in this capacity for several years now, and he was sure they could not do better than re-elect them.

Lieut.-Col. W. F. T. Corrie seconded this resolution, which was carried unanimously.

Mr. William Cash briefly returned thanks.

Vote of Thanks to Directors.

Mr. R. W. Edwards moved a vote of thanks to the Directors for their services during the past year. There was one thing that would strike them, and that was the very diverse character of this particular undertaking. It was surprising that there was no parallel to it, when they observed the elastic way in which this Company operated. The balance-sheet showed a great deal of hidden work.

Mr. Chamberlain seconded the vote of thanks.

The Chairman, in reply, said that they all appreciated what Mr. Edwards had said, because he was doing very much as they themselves were doing. He was supplying gas, water, and electricity at Aldershot and the surrounding areas, and therefore appreciated more than many others the kind of work they had to do. The whole of the works were doing well, continued the Chairman. When they took over some of the smaller undertakings they were very often run well so far as their proprietors were able to run them; but nearly always they did not have all the capital necessary to carry on the work in the best possible way; and so the British Gas Light Company's advantages in being able to buy coal and appliances in large quantities did enable them to do rather better than people less fortunate in their financial resources.

Vote of Thanks to Officers and Staff.

He would like to propose a very hearty vote of thanks to the officers and staff of the Company. They had always been very fortunate in their officers, who trained others so that they could follow them. Mr. Brookes, their late Secretary, served them for over 50 years, and did very valuable work for the Company, and they were very glad to have him on the Board. He had trained those under him to follow him in the proper way. They were pleased to have Mr. Mumford as Secretary, who had the whole traditions of the Company in mind. They were also fortunate in all their workpeople, who all worked very well indeed. That was not unusual in gas companies, however. It was now many years since they had had any trouble with their workpeople, and it was a fact that they did consider them in the greatest possible way.

Mr. Graham Wilkin seconded the vote of thanks to the officers and staff which was carried with acclamation.

Mr. Mumford, in acknowledgment of the vote of thanks, said he was sure that the staffs at the Chief Office and the Company's stations would appreciate as much as he did the very kind way in which this vote of thanks had been proposed and received. The officials and workmen throughout the Company's service were keen and enthusiastic, and, what to his mind was of at least equal importance, they had confidence in the future of the industry generally and the British Gas Light Company in particular. They esteemed it a privilege to work in the service of the Company, and the knowledge that in the performance of their duties they had earned the proprietors' approbation would encourage them to even greater effort.

This concluded the meeting.

Gas Companies' Results in 1929.

Hardly a Moribund Industry.

BARNARD CASTLE.

At the Annual Meeting of the Barnard Castle Gas Company—Col. H. C. Watson presiding—it was reported that the profit and loss account showed a balance of £1431 available for dividend, and it was decided to pay a dividend of 5 p.ct. per annum on the original consolidated stock, and of £3 11s. 5d. p.ct. on the new ordinary stock, which left £1170 to be carried forward.

BARNSTAPLE.

Mr. F. W. Hunt presided at the Annual Meeting of the Barnstaple Gas Company. The Directors' report showed that the balance standing to the credit of the profit and loss (net revenue) account amounts to £7235, out of which the Directors recommend the declaration of a dividend, *less* income-tax, for the year ended Dec. 31 last, at the rate of £13 p.ct. per annum on the "A" shares and £9 2s. p.ct. per annum on the "B" shares. The Chairman, in moving the adoption of the report and accounts, said it was a matter of great pleasure to be able to report that they had made very satisfactory progress during the past twelve months, and that there was never a time in the history of the Company when its financial position was in a sounder and healthier condition. The demand for gas had been well maintained, and he was able to announce a further increase in the quantity of gas sold of 6,572,400 c.ft. There had also been a satisfactory development in the number of consumers and in the number of gas appliances sold and let on hire. The income for gas was £16,623, compared with £15,293 in 1928—a gain of £1330. Rentals from meters, stoves, and fittings increased from £2430 to £2587, and the revenue from residuals was £4257, against £4551, the result being that there was an increase of £1181 on revenue taken as a whole. On the expenditure side of the account, manufacture of gas cost £15,995, against £14,680 (£1315 more than in 1928), distribution charges were £2177, against £2932, and rent, rates, taxes, and insurance £1163, against £958. Management came to £1330, against £1306, and the total expenditure amounted to £20,887, compared with £20,201 in 1928. The amount carried to profit and loss (net revenue) account was £2738, against £2243. After meeting the charges for mortgage interest and income-tax, and transferring the sum of £220 to reserve fund account, the balance standing to the credit of the profit and loss account was £7235, out of which the Directors recommended the payment of dividends mentioned in the report. This would absorb £1907, and leave £5328 to be carried forward. During the year they carbonized 6751 tons of coal, and made 89,887,000 c.ft. of gas, 4050 tons of coke, 68,463 gallons of tar, and 40 tons of sulphate of ammonia. The sales of gas for the year reached the record quantity of 82,426,100 c.ft., compared with 75,853,700 c.ft. in 1928, thus showing the increase of 6,572,400 c.ft. already referred to.

BURGESS HILL.

At the 28th Ordinary Meeting of the Burgess Hill and St. John's Common Gas Company, held on March 13—the Chairman (Lieut.-Col. S. T. Maynard, T. D., J.P., presiding—the 27th report of the Directors showed the available balance on Dec. 31, 1929, was £1394. Payment was recommended, on and after March 15, 1930, of dividends of £7 10s. p.ct. on the original shares and £5 5s. p.ct. on the new ordinary shares (both free of income-tax), equivalent to gross dividends of £9 7s. 0d. and of £6 11s. 3d. respectively. It was also recommended that a further £50 be added to the reserve fund, leaving a balance of £253 to be carried forward to next year's accounts. During the past year, a savings association and profit-sharing arrangement had been established for the benefit and encouragement of the staff. Moving the adoption of the report and accounts, the Chairman said nearly £1000 had been spent on extension of mains consequent on increased demand. The pressure of gas was satisfactory generally. Over £700 had been expended on meters and cookers. In May last 300 of the 500 shares had been issued, and these had realized £1500. In addition, they had created £900 debentures. The sales of gas had increased by about 5½ p.ct. There were 122 more consumers at the end of 1929 than at the end of 1928. The district was increasing gradually, and they now had 130 consumers to every mile of main.

CLEVELAND.

At the General Meeting of the shareholders of the Cleveland Gas Company—Major E. Hamilton, Saltburn, Chairman of the Company, presiding—it was decided that a dividend at the rate of 3 p.ct. for the year should be paid. There was a disposable balance of £4303; £200 was added to the contingent fund; and £3505 was carried forward.

DARTMOUTH.

The Directors of the Dartmouth Gas, Coke, and Coal Company submitted the following statement of accounts for the year ended Dec. 31 last: The profit on the year's working (after charging to revenue all renewals, repairs, and maintenance, and depreciation on meters, stoves, and gasholders) is £2418. After charging £280 interest on mortgage debentures and £77 interest on the first preference shares, and £196 for income-tax, there remains a balance, subject to income-tax, available for distribution of £1916. The Directors recommend the full dividend of 5 p.ct. to June 30, and 6 p.ct. to Dec. 31 on the second preference shares, *less* income-tax, absorbing £165, and a dividend of 8 p.ct. on the ordinary shares, *less* income-tax, absorbing £912, and purpose carrying the sum of £500 to the general reserve fund account, leaving a balance to be carried to the next account of £339.

GOSPORT.

Presiding at the Annual Meeting of the Gosport District Gas Company on March 12, the Chairman of Directors, Mr. W. E. Churcher, stated that one of the outstanding features of the past year had been the large increase in the sales of gas in all districts of supply, including the Lee-on-the-Solent area, which contributed a local increase of 8 p.ct., partly due to the reduced charges which became operative about this time last year, and also to the severe weather experienced in the early part of the year. The actual increase amounted to 27,706,600 c.ft., or 8·48 p.ct., and it was a matter

[Continued on page 48.]

STOCK AND SHARE LIST.

[For Stock Market Report, see earlier pages.]

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf. Yr.	Dividends. Last Hf. Yr.	NAME.	Quotations. Mar. 28.	Rise or Fall on Week.	Transactions Lowest and Highest Prices During the Week.
£			% p.a.	% p.a.				
171,978	Stk.	Feb. 6	5	5	Aldershot 5 p.c. max. C.	73—78	..	..
522,992	,,	,,	4	4	Do. 4 p.c. Pref.	70—73	..	..
1,551,868	,,	Sept. 26	7½	7½	Alliance & Dublin Ord.	93—96	..	96½
374,000	,,	Jan. 9	4	4	Do. 4 p.c. Deb.	60—63	..	..
522,655	,,	Mar. 6	7	7	Barnet Ord. 7 p.c.	109—112	..	..
300,000	1	Oct. 24	1/4½	1/4½	Bombay, Ltd.	16/- - 18/-	..	16/3—16/9
174,500	10	Mar. 6	9	9	Bournemouth 5 p.c.	13—14	..	..
500,050	10	,,	7	7	Do. B 7 p.c.	12½—12¾	+⅛	12¾
439,160	10	,,	6	6	Do. Pref. 6 p.c.	10½—11½	..	..
50,000	Stk.	Dec. 19	3	3	Do. 3 p.c. Deb.	53—56	..	..
162,025	,,	,,	4	4	Do. 4 p.c. Deb.	72—75	..	..
357,900	,,	Mar. 20	7½	7½	Brighton & Hove 6 p.c. Con.	113—116*	+2	112½—113½
371,880	,,	,,	6¾	6¾	Do. 5 p.c. Con.	100—103*	+2	100—101
1,287,500	,,	Feb. 20	5	5	Bristol 5 p.c. max.	86½—87½a	..	..
855,000	,,	Sept. 12	7½	7	British Ord.	112—117	..	114—115
100,000	,,	Dec. 19	7	7	Do. 7 p.c. Pref.	109—114	..	..
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb.	69—71	..	70
450,000	,,	,,	5	5	Do. 5 p.c. Red. Deb.	92—95	..	..
100,000	,,	Jan. 9	5	5	Cambridge 5 p.c. Deb.	90—93	..	..
100,000	10	Dec. 5	8	6	Cape Town, Ltd.	8½—9½	..	..
100,000	10	Nov. 7	4½	4½	Do. 4½ p.c. Pref.	6¾—7½	..	..
150,000	Stk.	Dec. 19	4½	4½	Do. 4½ p.c. Deb.	69—74	..	..
626,860	,,	Feb. 20	6	6	Cardiff Con. Ord.	96—99	..	97½
237,860	,,	Jan. 9	7½	7½	Do. 7½ p.c. Red. Deb.	98—101	..	..
157,150	,,	Feb. 20	5	6⅓	Chester 5 p.c. Ord.	87½—92½b	..	..
98,936	1	Oct. 10	‡2/-	‡2/-	Colombo, Ltd. Ord.	34/—36/-	..	..
24,495	1	,,	1/4½	1/4½	Do. 7 p.c. Pref.	19/—21/-	..	..
375,402	1	Oct. 10	1/9½	1/9½	Colonial Gas Assn. Ld. Ord	20/6—22/6	..	..
187,848	1	,,	1/7½	1/7½	Do. 8 p.c. Pref.	20/—22/-	..	..
2,073,280	Stk.	Feb. 20	5	7	Commercial Ord.	87—92	..	88½
475,000	,,	Dec. 19	3	3	Do. 3 p.c. Deb.	57—60	..	..
787,560	,,	Feb. 20	7	7	Croydon sliding scale.	103—106	..	103—105
453,100	,,	,,	5	5	Do. max. div.	83—86	+2	..
542,270	,,	Mar. 6	7	10	Derby Con.	115—125e	..	..
55,000	,,	Dec. 19	4	4	Do. Deb.	67—70e	..	..
309,000	,,	Mar. 6	5	5	East Hull Ord. 5 p.c.	71—73	..	..
1,002,180	10	Mar. 20	†4	†7	European, Ltd.	12⅜—13¼*	+⅜	12½—13⅜
18,629,125	Stk.	Feb. 20	5⅔	5⅔	Gas Light & Coke 4 p.c. Ord.	18/10½-19/4½f	+1/-	18/1½—19/3
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.	62½—64½	+½	63½ - 64
4,157,020	,,	,,	4	4	Do. 4 p.c. Con. Pref.	77—80	+1	77—77¾
5,602,620	,,	Dec. 19	3	3	Do. 3 p.c. Con. Deb.	58—61	+1	58½—60
2,642,770	,,	,,	5	5	Do. 5 p.c. Red. Deb.	98—101	+1	99—100
82,500	,,	Mar. 20	7	7	Hastings & St. L. 5 p.c. Conv.	96—101*	..	..
258,740	,,	,,	5½	5½	Do. 3½ p.c. Conv.	78—83*	..	..
70,000	10	Oct. 10	†10	†10	Hongkong & Chi na, Ltd.	13½—14½	..	..
213,200	Stk.	Mar. 6	6	6	Hornsey Con. 3½ p.c.	90—93	..	..
1,976,000	,,	Nov. 1	20	10	Imperial Continental Cap.	370—390	+25	354—385
225,130	,,	Feb. 6	3½	3½	Do. 3½ p.c. Red. Deb.	70—75	..	..
235,242	,,	Mar. 20	8½	8½	Lea Bridge 5 p.c. Ord.	112—115*	..	..
2,145,907	,,	Feb. 20	6	6	Liverpool 5 p.c. Ord.	89½—90½b	+1	..
600,000	,,	Mar. 20	7	7	Do. 7 p.c. Red. Pref.	97½—99½b*	..	..
165,736	,,	Feb. 20	9	8	Maidstone 5 p.c. Cap.	119—124	..	119¾
68,480	,,	Dec. 19	3	3	Do. 3 p.c. Deb.	52—55	..	..
75,000	5	Dec. 5	†10	†10	Malta & Mediterranean Metrop'itan (of Melbourne)	5½—6	..	5⅞
392,000	—	Oct. 1	5½	5½	5½ p.c. Red. Deb.	92—95	..	..
641,920	Stk.	Nov. 21	†9	†6	Montevideo, Ltd.	107—112	..	111
2,061,315	,,	Feb. 20	5	5½	Newcastle & Gateshead Con.	15/9—16/3df	..	..
682,856	,,	,,	4	4	Do. 4 p.c. Pref.	69½—70½d	..	..
691,705	,,	Dec. 19	3½	3½	Do. 3½ p.c. Deb.	66½—67½d	..	..
169,940	,,	Mar. 6	7½	7½	North Middlesex 6 p.c. Con.	109—114	..	..
396,160	,,	Feb. 6	5	5	Northampton 5 p.c. max.	74—77	..	..
300,000	,,	Nov. 21	7	9	Oriental, Ltd.	108—113	..	112
60,000	.5	13 My., '15	—	—	Ottoman	0—½	..	..
205,162	Stk	Jan. 9	8	8	Plym'th & Stonehouse 5 p.c.	107—110	..	..
424,416	,,	Feb. 20	8	8	Portsm'th Con. Stk. 4 p.c. Std	110—115	..	..
241,446	,,	,,	5	5	Do. 5 p.c. max.	78—81	..	..
2,334,464	1	June 27	—	‡5	Primitiva Ord.	28/—30/-	+1/-	..
244,500	100	Dec. 2	4	4	Do. 4 p.c. Red. Deb.	92—95	..	..
695,000	Stk.	Jan. 23	4	4	Do. 4 p.c. Red. Deb. 1911	81—84	+4	..
416,345	,,	Dec. 19	4	4	Do. 4 p.c. Cons. Deb.	81—84	+4	..
150,000	10	Sept. 26	6	6	San Paulo 6 p.c. Pref.	8½—9½	..	..
1,796,968	Stk.	Mar. 20	6¼	6¼	Sheffield Cons.	102—104e*	—½	..
95,000	,,	Jan. 9	4	4	Do. 4 p.c. Deb.	76—78e	..	..
90,000	10	June 13	‡4	‡4	South African	4—6	..	5⅛—5⅜
6,709,895	Stk.	Feb. 20	5	7½	South Met. Ord.	98—100	+1	98—100
500,000	,,	,,	6	6	Do. 6 p.c. Irred. Pf.	107—110	..	..
1,895,445	,,	Jan. 9	3	3	Do. 3 p.c. Deb.	57—60	+1	59—60
734,000	,,	Mar. 6	6½	6½	Do. 6½ p.c. Red. Db.	97—99	..	99—100
91,500	,,	Mar. 20	8½	8½	South Shields Con.	105⅞—107¾d*	..	..
1,543,795	,,	Feb. 20	6½	6½	South Suburban Ord. 5 p.c.	98—101	..	98½
468,837	,,	Dec. 19	5	5	Do. 5 p.c. Deb.	92—95	..	..
647,740	,,	Feb. 20	5	5	Southampton Ord. 5 p.c.max.	76—79	..	..
121,275	,,	Dec. 19	4	4	Do. 4 p.c. Deb.	72—75	..	..
179,014	,,	Feb. 20	8	8	Sutton Ord.	113—116	..	..
67,828	,,	Jan. 9	5	5	Do. 5 p.c. Deb.	91—94	..	..
250,000	,,	Mar. 6	7	7	Swansea 7 p.c. Red. Pref.	97—99	..	..
200,000	,,	Dec. 19	6½	6½	Do. 6½ p.c. Red. Deb.	99—101	..	99½
1,076,490	,,	Mar. 6	6⅔	6⅔	Tottenham District Ord.	100 - 104	..	101
150,000	,,	,,	5⅓	5⅓	Do. 5⅓ p.c. Pref.	95—98	..	..
199,005	,,	Dec. 5	4	4	Do. 4 p.c. Deb.	70—73	..	..
182,380	10	30 Dec., '12	—	—	Tuscan, Ltd.	3⅜—4⅜	..	..
85,701	Stk.	Mar. 20	6	6	Do. 6 p.c. Red. Deb.	76—80*	..	..
309,094	,,	Mar. 6	7	7	Uxbridge, Maidenhead, & Wycombe 5 p.c.	94—99	..	..
88,390	,,	,,	5	5	Do. 5 p.c. pref.	85—90	+2	89
1,180,970	,,	—	—	—	Wandsworth, Wimbledon, and Epsom Cons.	107—112	..	107½—110
200,000	,,	Feb. 20	5	5	Do. 5 p.c. Pref.	85—90	..	..
488,344	,,	Dec. 19	5	5	Do. 5 p.c. Deb.	92—97	..	..

Quotations at:—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. *f.*—The quotation is per £1 of Stock. * Ex. div. † Paid free of income-tax. ‡ For year.

STOCK ISSUES.

By Order of the Directors.

SLOUGH GAS AND COKE COMPANY.

Messrs. A. & W. RICHARDS

are Instructed to OFFER FOR SALE BY TENDER

£30,000

ORDINARY STOCK,

ranking equally with existing Stock which for six years has received 7 per cent. per annum.

Minimum Price of Issue, Par. Also

£2000

FIVE PER CENT. PERPETUAL DEBENTURE STOCK.

Minimum Price of Issue, £97 10s. per £100.

Yielding at that Price, £5 2s. 7d. per cent.

Prospectus and Forms of Tender (which latter must be sent in by 11 o'clock on Monday, the 14th of April) may be obtained of A. & W. RICHARDS, 37, WALBROOK, E.C. 4.

READING GAS COMPANY.

(Incorporated by Special Acts of Parliament.)

SALE BY TENDER OF

£22,900

FIVE PER CENT. PERPETUAL DEBENTURE STOCK.

Minimum Price of Issue, £97 per £100 Stock.

THE Directors of the Reading Gas Company are prepared to receive, not later than the 14th of April, 1930, TENDERS for the above Stock in amounts of £10, or multiples thereof.

The Stock will be allotted to the highest bidder, but no Tender below the minimum price will be considered.

The Stock will be registered in the Company's books in the names of the Purchasers or their Nominees free of expense, and will be transferable by Deed in the usual way in amounts and multiples of £1, provided the minimum holding is not less than £10.

The purchase money must be paid in full by the 28th of April, 1930. Interest will accrue from the 1st of April, 1930.

The Interest on the Company's Debenture Stocks is payable half-yearly on the 1st of July and the 1st of January, and three months' Interest on this Issue will be paid on the 1st of July, 1930.

The full rates of Interest and the Statutory Dividends have been regularly paid since the Company's incorporation in the year 1862.

A Brokerage of 10s. per £100 Stock will be paid on all Stock allotted upon applications received through, and endorsed with the names of, Bankers, Brokers, or Solicitors.

Printed copies of the Company's Accounts for the year 1929 and Forms of Tender may be obtained from the undersigned.

By Order of the Directors,
A. B. STEDMAN,
Secretary.

159, Friar Street,
Reading,
March 25, 1930.

THAMES BANK IRON Co., Ltd.,

LODGE ROAD, ST. JOHN'S WOOD, LONDON, N.W. 8.

Telegrams: "HOTWATER, 'PHONE, LONDON."
Telephones: PADDINGTON 7482, 7483, and 7484.

C.I. Socket & Spigot PIPES and Fittings.

GAS SYPHONS.

Flange Pipes & Specials.

LARGE SELECTION IN LONDON STOCK.

of interest that this coincided almost exactly with the total sales of gas of the late Fareham Gas Company at the date of its amalgamation with the Gosport Company. The maximum quantity of gas sent out from the works on any one day was 1,500,000 c.ft., registered on Christmas Day, an increase of 147,000 c.ft. compared with the Christmas of the preceding year. Notwithstanding that the price of gas was reduced in all districts by nearly 2½d. per 1000 c.ft. last year, the Directors had decided to recommend a further reduction of two-fifths of a penny per therm, equivalent to just over 1½d. per 1000 c.ft., which would come into operation at the end of the present March quarter. This would bring the price of gas to a figure below the lowest pre-war price. In addition, in consequence of the increased sales of gas in the Fareham district, in which the price was regulated by the quantity used, a further reduction of two-fifths of a penny per therm became operative there as from Jan. 1 last, making a total reduction in that area of more than 3d. per 1000 c.ft. The number of appliances in the district had increased by 1004, and the number of consumers showed an increase of 366, bringing the total to 10,836 at the end of the year. There were increased receipts for gas of some £2500, in spite of the reduction in price, while the rentals from meters and appliances were higher owing to the additional consumers supplied. It was decided to pay maximum dividends, £5 p.ct. on the preference stock and £7 7s. 9d. p.ct. on the consolidated ordinary stock.

HASSOCKS.

The first Ordinary General Meeting of the shareholders of the Hassocks and District Gas Company, Ltd., was held at the Hassocks Hotel, Hassocks, on March 24. The Report showed that shares, including those of the shareholders of the two old Companies as part consideration for the sale of the two works, had been allotted to the extent of £19,737. Inquiries had been made of the Directors of the Henfield Gas and Coke Company, Ltd., whether they were prepared to consider selling their undertaking to the Hassocks and District Gas Company. If suitable terms could be arranged, the shareholders would be invited to approve the proposal and the ultimate question of statutory rights over the whole area covered by these two Companies. The profit for the year, *less* tax, amounted to £2807; but the Directors were advised that such proportion as was made between Sept. 28, 1928, and Jan. 4, 1929, the date of the incorporation of the Company, was not available for distribution. Consequently the sum of £933 had been written off, as to £783 from the cost of works account, and as to £150 from meters and cookers account. After providing for tax of £763, there was available £2044. The Directors proposed a dividend of 7½ p.ct., *less* tax (approximately £1120), allocating to depreciation £300; Directors' fees, free of tax, £300; and carrying forward £324.

LONDONDERRY.

At the 54th Annual General Meeting of the shareholders of the Londonderry Gaslight Company, Mr. R. H. Smyth, D.L. (Chairman of Directors), presided. Proposing that the Directors' report and the dividends recommended therein be adopted, the Chairman said: The gas sold was over 7 million c.ft. more than the previous year, which, you will remember, then constituted a record output in the history of the Company. We have connected 340 new consumers, supplied 330 cookers, and over 200 gas fires and heating appliances during the year. Builders and architects are realizing more and more the advantage of the adequate equipment of all houses with gas cooking and heating appliances, thus meeting the insistent demand from the householder for the reduction of labour to a minimum and cleanliness and efficiency to a maximum.

SHOTLEY BRIDGE.

Presiding at the Annual Meeting of Shotley Bridge and Consett Gas Company, Col. W. H. Ritson said the results had been quite satisfactory. The sales of gas had been equivalent to an increase of 1·9 p.ct. over the previous year, and they had had a very good year in regard to the sale of coke; but tar had gone back both in regard to quantity and the amount realized. Dividends of 5 p.ct. on the ordinary shares and 6½ p.ct. on the preference shares were passed.

STAMFORD.

The Stamford and St. Martin's Gas Light and Coke Company have just concluded another satisfactory year's working. At the annual meeting, over which Mr. James Ringham, Chairman of the Directors, presided, a profit of £3037 on the twelve months was reported, the balance available for disposal being £3444. The Directors recommended the confirmation of the interim dividend of 5 p.ct. (actual), *less* tax, paid on Sept. 1, 1929, and the payment of a final dividend of 6 p.ct. (actual), *less* tax, making a total of 11 p.ct. for the year, and the carrying forward of the remaining balance of £2686 to the current year's account. The business of the Company, it was stated, continued to increase, and a large number of gas appliances had been sold during the year. Moving the adoption of the report, the Chairman commented upon the healthy condition of the Company's business and upon the very satisfactory year's working. It was to be noted, he said, that a new 8-in. trunk main had been laid in one of the main thoroughfares with a view to giving a better supply to various districts of the town. Mains had also been laid to serve the new housing estate in Northfields. On the works side, additional purification plant had been installed, and this, too, was in order to give better service to the customers.

UTTOXETER.

The Annual General Meeting of the Uttoxeter Gas Company was held on March 20—Mr. C. H. Cowlishaw, Chairman of the Directors, presiding. The statement of accounts for the year ended December, 1929, were presented and passed. The Chairman, in moving their adoption, said that the accounts were very satisfactory, and showed that the Company had made a profit of over £800 more than the previous year. There had been an increase in the sales of gas, and the works were in an efficient state of order and repair. An interim dividend for the June half-year was paid in September last, and the Directors now recommended a final dividend of 10 p.ct. on the "B" shares for the half-year ended Dec. 31 last.

WOKING.

The 33rd Ordinary General Meeting of the Woking District Gas Company was held on March 10—Mr. Lawrie Trewby (Chairman and Managing Director) presiding. The Directors' report for the half-year ended Dec. 31 last was as follows: In comparison with the half-year ended Dec. 31, 1928, the quantity of gas sold shows an increase of 5,574,721 c.ft., or 6·71 p.ct., and receipts from sale of residual products show an increase of £40. The net gains in consumers during the half-year number 291, and 544 cookers, gas fires, &c., have been fitted. The profit on the half-year's working, including interest received, after charging interest on debenture capital, temporary loans, and income-tax, amounts to £3112, which, with £7118 brought from the previous half-year, makes a disposable balance of £10,230. It is recommended that dividends at the following rates be paid (*less* income-tax) on the preference and ordinary stocks, which will absorb £3526, and that £500 be transferred to reserve fund, leaving £6204 to be carried forward to the next account—viz., on the "A" ordinary stock, 10 p.ct. per annum; on the "B" ordinary stock, 7 p.ct. per annum; on the "C" preference stock, 5 p.ct. per annum; and on the 8 p.ct. redeemable preference, 8 p.ct per annum. In moving the adoption of the report and accounts, the Chairman said the Directors again reported a very good increase of 5½ million c.ft., and, for the year, the increase was 15½ millions, or 9 p.ct. This was one of the best increases they had had to report, and the best he had heard of for a very long time. With the addition of 291 in the half-year, consumers numbered 6514, of whom 4600 were supplied by slots. Speaking on the results for the year, as the half-year's figures were not comparable, Mr. Trewby said, after reducing the price of gas by a halfpenny, a year ago, making full appropriation for depreciation, placing £1400 to the special purposes fund, paying standard dividends of 10 p.ct. and 7 p.ct., and placing £1500 to reserve, they were carrying forward £1345 more than they brought in. This, he thought, was an excellent result. As a result of all this and of the fact that they had purchased their coal till 1931, the Directors had decided to reduce the price of gas by another halfpenny per therm, which was equal to about £1700 for the year. The largest expenditure was on new mains—over £7000. They laid 5¾ miles of main, making their total mileage 75; and they had taken gas to a number of new districts, the chief being Horsley and Effingham, where they had picked up something like 70 consumers.

WREXHAM.

The Ordinary General Meeting of the stockholders of the Wrexham Gas Company was held at the Company's Offices on March 14—Mr. Charles Murless (Chairman of Directors) presiding. The annual report for the year ended Dec. 31, 1929, shows that further considerable extensions of the Company's mains have been carried out in the Borough of Wrexham and the Parishes of Broughton, Esclusham Below, Gwersyllt, and Gresford. The price of gas was reduced in the September quarter of this year by 0·6d. per therm, making the price charged in the December half-year 9·4d. per therm. This being 0·4d. per therm below the standard price will permit the payment of a dividend on the ordinary stock at the rate of 5¼ p.ct. per annum for the December half-year. The interest on the loan capital has been paid for the year, and also the interim dividend on the redeemable preference stock and on the ordinary stock for the June half-year. The Directors recommend the payment of a dividend at the rate of 3½ p.ct. on the redeemable preference stock, and a dividend at the rate of 2⅝ p.ct. on the ordinary stock for the half-year ended Dec. 31, making, with the interim dividends paid for the June half-year, 7 p.ct. and 5¼ p.ct. for the year respectively. Mr. Murless, in moving the adoption of the Directors' report and statement of accounts, said: I am to-day presenting the 91st annual report of the Directors and the statement of accounts of the Company, which I consider will be of great interest to the stockholders. The first report was presented in 1840, in which year the Company took over the gas-works of their predecessors, a private firm—Messrs. Keay, Edwards, & Co.—and it is now over 100 years since the town was first supplied with gas. To give you some idea of the progress that has been made in the interval, I may mention that when the Company took over the supply the annual make of gas was about 1 million c.ft., while the annual make is now well over 200 million c.ft. A sum of £4378 has been spent on capital account for new mains, meters, cookers, and the fitting up of premises for new prepayment meter consumers. We have powers to raise a further £25,000 of ordinary stock, and £42,000 of loan capital, but as far as can be seen at present, it will not be necessary to apply for any of this money for some little time to come. Another item that appears in the accounts for the first time shows that the sum of £1742 has been transferred to the capital account for depreciation of holders, meters, and cookers, which is a wise provision to make now that the Company's funds are full. A sum of £262 has been transferred to the special purposes fund, which now stands at its maximum. The revenue from the sale of gas is down slightly by £753, as compared with the previous year; this is due to the reduction in the price of gas. Actually the quantity of gas sold was 27,615 therms, or 6,130,000 c.ft., more than in the previous year, and indicates the steady growth of the Company's business. The increased production of gas for the past ten years amounts to over 47 million c.ft.

NOTICES TO CORRESPONDENTS, ADVERTISERS, AND SUBSCRIBERS.

No notice can be taken of anonymous communications. Whatever is intended for insertion in the "JOURNAL" must be authenticated by the name and address of the writer—not necessarily for publication but as a proof of good faith.

COPY FOR ADVERTISEMENTS for the "JOURNAL" should be received at the Office NOT LATER than TWELVE O'CLOCK NOON ON TUESDAY, to ensure insertion in the following day's issue.

Orders to Alter or Stop PERMANENT ADVERTISEMENTS should be received by the FIRST POST on Monday.

UNDISPLAYED ADVERTISEMENTS: Situations Wanted, Six Lines and under (about 36 words), 3s.; each additional Line, 6d. Situations Vacant, Apparatus Wanted and for Sale, Contracts, Public Notices, &c., 9d. per Line—minimum, 4s. 6d. An additional charge of 6d. is made where replies are addressed c/o the "JOURNAL."

TERMS OF SUBSCRIPTION to the "JOURNAL."

(Continuous Subscribers are entitled to a free copy of the "GAS JOURNAL" CALENDAR and DIRECTORY.)

		ONE YEAR.	HALF-YEAR.	QUARTER.
United Kingdom & Ireland	Advance Rate:	35/-	18/-	10/-
	Credit Rate:	40/-	21/-	11/6
Dominions & Colonies & U.S.A. Payable in Advance		35/-	—	—
Other Countries in the Postal Union. Payable in Advance		40/-	22/6	12/6

In payment of subscriptions for "JOURNALS" sent abroad, Post Office Orders or Bankers' Drafts on London only are accepted.

All Communications, Remittances, &c., to be addressed to WALTER KING, LIMITED, 11, BOLT COURT, FLEET STREET, LONDON, E.C. 4.

Telegrams: "GASKING, FLEET LONDON." Telephone: Central 6055.

Gas Purification & Chemical Company, Limited

— ESTABLISHED 1873 —

PALMERSTON HOUSE, 34, OLD BROAD STREET, LONDON, E.C.2

Gas Purification Contractors

WILL SUPPLY

Oxide of Iron

on Sale Outright
or on Loan Contract

AND PURCHASE

Spent Oxide

Per Contra or Separately.
London or Provinces
Samples Tested Free

Telegrams: "Purification, Stock, London."
Telephone: London Wall 9144.

SATURATORS

FOR producing Long Needle-like CRYSTALS; also plant for producing NEUTRALIZED SULPHATE.

THE CHEMICAL ENGINEERING AND WILTON'S PATENT FURNACE Co., Ltd.
76, Victoria Street, London, S.W. 1.
(See also advertisement p. 12.)

Telephone: VICTORIA 2417. Telegrams: "EVAPORATOR PHONE LONDON."

GAS WORKS STEAM PLANT.
We can meet your requirements for BOILERS, RECEIVERS, TANKS, WASHER TUBES, SIZING SCREENS, PLATE WORK, BOILER SETTINGS, CHIMNEYS (brick and steel).

INQUIRIES INVITED.

H. & T. DANKS (NETHERTON) Ltd., NETHERTON, DUDLEY.
(See illustrated page advert., March 26, Centre p. IX.)

GEORGE WILSON GAS METERS, Ltd.
for
GAS-METERS, ORDINARIES, SLOTS, AND REPAIRS

Foleshill Road, COVENTRY.
Telephone: 596. Telegrams: "GASMETER."
Certus Works, Kingston Road, Raynes Park, LONDON, S.W. 20.
Radium Works, 12, Radium Street, Oldham Road, MANCHESTER.

SULPHURIC ACID.

SPECIALLY prepared for the manufacture of SULPHATE OF AMMONIA.

SPENCER CHAPMAN & MESSEL, LTD.,
with which is amalgamated WM. PEARCE & SONS, LTD., Walsingham House, Seething Lane, LONDON, E.C. 3.
Works—SILVERTOWN.
Telegrams—"HYDROCHLORIC, FEN LONDON."
Telephone—ROYAL 1166.

WATER-GAS PLANT

ECONOMICAL GAS APPARATUS CONSTRUCTION COMPANY, LIMITED.

22, Carlisle Place, London, S.W.

J. & J. BRADDOCK (Branch of Meters Limited), Globe Meter Works, OLDHAM, and 45 & 47, Westminster Bridge Road, LONDON, S.E. 1.

WET AND DRY GAS METERS, PREPAYMENT METERS, STATION METERS AND GOVERNORS.

REPAIRS RECEIVE PROMPT ATTENTION.

Telephones: 815 Oldham, and 2412 Hop, London.
Telegrams: "BRADDOCK, OLDHAM," and "METRIQUE, LAMB, LONDON."

MEWBURN, ELLIS, & CO.,
CHARTERED PATENT AGENTS AND TRADE MARK AGENTS,
70 & 72, Chancery Lane, London, W.C. 2.
Telegrams: "Patent, London." Phone: 243 Holborn.
And 3, St. Nicholas Buildings, Newcastle-on-Tyne.

THE BRITISH GAS PURIFYING MATERIALS CO., LTD.,
99, LONDON ROAD, LEICESTER.
Telegrams: "BRIPURIMAT, LEICESTER." Telephone: LEICESTER 5096.

Solicit enquiries for:
NATURAL BRITISH PURIFYING MATERIAL,
NATURAL HYDRATED OXIDE OF IRON,
FIRST QUALITY DUTCH BOG ORE,
BEST QUALITY BELGIAN BOG ORE,
"PREPARED" AND "UNPREPARED" ARTIFICIAL OXIDES.

SPENT OXIDE PURCHASED.

LONDON OFFICE:
226, BISHOPSGATE, E.C.2.
Telegrams: "BRIPURIMAT AVE. LONDON." Telephone: BISHOPSGATE 8656.

WEIGHBRIDGES

FOR Motor Lorries and Railway Traffic can be seen erected at our Works READY FOR DELIVERY. Inspection by your Engineer invited and a test by your Local Inspector of Weights and Measures before delivery. Every machine a High-Class Engineering Product and fully guaranteed.

CHARLES ROSS, LIMITED, SHEFFIELD.

HUTCHINSON BROTHERS, Ltd.

FALCON WORKS, BARNSLEY.

MANUFACTURERS OF
GAS METERS (Ordinary and Slot).

"FALCON" INVERTED LAMPS,
SQUARE STREET LANTERNS
SUPERHEATER BURNERS, and
CONVERSION SETS for Street Lanterns.

SULPHURIC ACID.

JOHN RILEY & SONS, Limited, Chemical Manufacturers, Accrington, Lancs., P.B.O. Box No. 62, are MAKERS of Special SULPHURIC ACID ("Eagle" Brand), for Sulphate of Ammonia Making. Highest percentage of Sulphate of Ammonia obtained from the use of this Vitriol, which has now been used for upwards of 80 years. Reference given to Gas Companies.

PATENTS for Inventions, Trade Marks Advice, Handbooks and Consultations free. KING'S PATENT AGENCY LTD., Director B. T. KING, C.I.M.E., Regd. Patent Agent, G.B., U.S., and Can., 146A, QUEEN VICTORIA ST., E.C. 4, and 57, CHANCERY LANE, (near Pat. Off.), LONDON, W.C. 2. 43 years' refs. 'Phone Cent. 0682.

OXIDE OF IRON.
SPENT OXIDE BOUGHT.

BALE & CHURCH, LTD.,
33, ST. MARY AT HILL, LONDON, E.C. 3.
Phone: Royal 1484.

"TORTO" FIRE CEMENT.

BALE & CHURCH, LTD.,
33, ST. MARY AT HILL, LONDON, E.C. 3
Phone: Royal 1484.

"KLEENOFF," THE COOKER CLEANSER.
Tins for Sale to Consumers.
In Bulk for Works Use.
(See "Gas Salesman.")

BALE & CHURCH, LTD.,
33, ST. MARY AT HILL, LONDON, E.C. 3.
Phone: Royal 1484.

MANCHESTER OXIDE CO., LTD.
MILES PLATTING,
MANCHESTER.

TEL.: OXIDE, MANCHESTER. ESTABLISHED 1806.
PHONE {5883 / 5884} CENTRAL.

FRESH OXIDE {ON SALE / OR LOAN.

BRITISH MAKE.
IMMEDIATE DELIVERY.
NO EXCESS MOISTURE.
IMMEDIATE ACTIVITY.
MINIMUM BACK PRESSURE.
MINIMUM EXPOSURES.
MINIMUM LABOUR.

SPENT OXIDE PURCHASED
ON SULPHUR CONTENT.
ON **BLUE** CONTENT.

SPECIALISTS IN PURIFICATION.

GAS PURIFIED IN 1929
OVER 46,000 MILLIONS.

APPOINTMENTS, &c., WANTED.

EXPERIENCED Lecturer and Demonstrator in Cooking by Gas can give LOCAL DEMONSTRATIONS for Gas Undertakings.

Gas Engineers should apply now for vacant dates to Miss H. H. TUXFORD, M.C.A., "WESTWOOD," TATTERSHALL, LINCOLN.

ROBERT DEMPSTER & SONS, Ltd., ELLAND, Builders of CARBONIZING PLANTS, both Horizontal and Vertical. Manufacturers of CONDENSERS, PURIFIERS, GASHOLDERS, &c., also every description of COAL and COKE HANDLING PLANT. Telegrams: "DEMPSTER, ELLAND." Telephone: ELLAND 261 (Private Branch Exchange).

EXTENSIONS and Renewals. Ask us to quote before ordering GAS APPARATUS, COKE-OVEN PLANT, STRUCTURAL STEELWORK. Competitive prices. First-Class Workmanship. Satisfaction Guaranteed.
FIRTH BLAKELEY, SONS, & CO., LTD., CHURCH-FENTON, YORKSHIRE.

STRACHAN & HENSHAW LTD., MANUFACTURERS BRISTOL. and CONTRACTORS for
HANDLING PLANT, SCREENS, TIPPLERS, ETC.

APPOINTMENTS, &c., VACANT.

CHESTER UNITED GAS COMPANY.

APPLICANTS for the position of WORKS FOREMAN ARE THANKED and informed that THE VACANCY HAS BEEN FILLED.

CHEMICAL ENGINEER—Wanted a Chemical Engineer conversant with latest and most up-to-date practice in Gas, Chemical, and Coke Oven Bye-Product Plants. One having Engineering or Science Degree preferred. Good salary to right man, but only those having the necessary qualifications will be considered. Age about 30 to 35.

Apply to the MANAGING DIRECTOR, WHESSOE FOUNDRY & ENGINEERING CO., LTD., DARLINGTON.

DRAUGHTSMAN-CLERK wanted in London Office. Salary £3 15s. a week.

State Age, Education, War Service (if any) Training and Experience, to No. 8056, "GAS JOURNAL," 11, BOLT COURT, FLEET STREET, E.C. 4.

LEADING Manufacturers specializing in Gas Lighting and Heating and Cooking Apparatus require energetic Young SALESMAN to interview Gas Undertakings and Lighting Authorities. Good Education and Social Standing essential.

Write, stating Experience, Age, and Remuneration expected, to No. 8059, "GAS JOURNAL," 11, BOLT COURT, FLEET STREET, E.C. 4.

PLANT &c., FOR SALE & WANTED.

PLANT FOR SALE.

PURIFIERS—Dry Lute Type. Two Sets of Four, 10 ft. square; with Lifting Gear, Valves, &c.

Meters.—Two Rectangular Station Meters fitted with New Drums, 15,000 c.ft. per hour capacity. Cylindrical Station Meters, 10,000, 4000, 3600, and 2000 c.ft. capacities and smaller.

Station Governors.—Parkinson, Cowan, Braddocks, and Peebles, 4 in., 6 in., 8 in., 9 in.

Retort Ironworks for beds of 4's, 5's, 6's, 7's, and 8's. 22 in. by 16 in. Self-Sealing Mouthpieces. 6 in. Ascension Pipes and all to follow.

Washers and Tar Extractors.—Livesey and Cripps type. 2 million, 500,000, 400,000, 250,000, 200,000, 150,000 and 100,000 c.ft. per day.

Exhausting Sets.—Steam and Gas Engine-driven, 5000 to 40,000 c.ft. per hour capacity.

Storage Tanks.—Large number in Stock (Rectangular and Cylindrical). Tar Stills, &c.

Tar and Liquor Pumps, Steam and Belt-Driven.
Air Receivers, Fans, Blowers, Valves, Rivetted Tubes.

Firth Blakeley, Sons, & Co., Ltd.
(Second-Hand Plant Dept.),
Vulcan Ironworks, Church-Fenton, Leeds.
Telephone: 14, South Milford. Telegrams: Blakeleys Church-Fenton.

TUNBRIDGE WELLS GAS COMPANY.

FOR SALE, at their Crowborough Works:

One Set complete Humphreys & Glasgow CARBURETTED WATER GAS PLANT, in excellent condition. Capacity, 150,000 c.ft. per 24 hours.

The BENCH IRONWORK of 2 Beds of Eights and 3 Beds of Sixes, Mouthpieces 22 in. by 16 in., with 6 in. Ascension Pipes.

Four 12 ft. square PURIFIERS by 4 ft. 6 in., with Lifting Gear and 12 in. Centre Valve and Connections.

Two EXHAUSTERS, 10,000 and 15,000 c.ft. capacity per hour, direct coupled, Gas driven.

Two LIVESEY WASHERS, 250,000 and 300,000 c.ft. per diem, 8 in. and 10 in. Connections.

Apply to the ENGINEER, GAS-WORKS, TUNBRIDGE WELLS.

PLANT FOR SALE.—Three Sets of GAS EXHAUSTERS, by Bryan Donkin, Chesterfield, 15 in. Connections, capacity 2 million cubic feet of gas per 24 hours.

Two Holmes Improved Pelouze & Audouin TAR EXTRACTORS, with 15 in. Connections, used in connection with Bryan Donkin Exhausters.

Six Steel GAS SCRUBBERS 32 ft. by 8 ft. with 18 in. Connections.

Two Vertical Tubular GAS COOLERS, 20 ft. by 7 ft. with 20 in. Connections, and 20 ft. by 6 ft., with 18 in. Connections.

Two SULPHATE OF AMMONIA STILLS (Walker's), 18 ft. by 6 ft. by 5 ft. 6 in., with Connections.

Two SATURATORS (Taylor's), each Saturator having a capacity of 30 tons of Sulphate of Ammonia per 24 hours.

Large Stock of S. and S. and Flanged GAS MAINS with VALVES, principally Holmes Western type.

GAS GOVERNORS, from 12 in. to 20 in., complete with By-Pass Connections.

One "Serpentine" Horizontal GAS COOLER, consisting of 1000 feet of 21 in. tubes.

All the above Plant is in First-Class Working Condition, and can be Inspected by Appointment.

KIDSGROVE COLLIERIES LIMITED,
KIDSGROVE,
STOKE-ON-TRENT,
STAFFS.
Telegrams: "Birchenwood Collieries Kidsgrove."
Telephone: 51 Kidsgrove.

THE Halifax Corporation Gas Depart- ment Offers for SALE the following SECOND-HAND MATERIALS:

1. About 1000 sq. yds. C.I. Floor Plates of Solid Cast Pattern. The majority of the Plates are 9 ft. 6 in. in length and 2 ft. wide, but a number are of the following widths: 1 ft. 5½ in., 1 ft. 7½ in., 1 ft. 8½ in., 1 ft. 10 in., and 2 ft. 6 in.
2. 46 C I. Girders, length about 21 ft., top flange 7 in., bottom flange 14 in., depth 18 in.
3. Six Retort House Governors for 14 in. Connections. Braddock's Type. In perfect working order.

THE Halifax Corporation Gas Depart- ment Offers for SALE their RESERVE STOCK OF RETORTS suitable for Horizontal and Inclined Settings, in lengths varying from 7 ft. 4 in. to 10 ft., and of a uniform thickness of 3 in.

The quality of the Retorts is guaranteed. Templates and full particulars will be sent on application to the Engineer.

Gas Department,
Halifax,
March 25, 1930.

TWW

NEW and Re-conditioned Machinery. Pumps Boilers, Tanks, Piping, Wire Ropes, Steel Barrows, Corrugated Sheets, Joists, Barbed Wire, Etc. Ask for new Edition of "Albion" Machinery Catalogue. Post free on application.
THOS. W. WARD, LIMITED,
ALBION WORKS, SHEFFIELD.

GAS-WORKS Plant. We Purchase, for Dismantling, for Re-Use or Scrap, any DISCARDED PLANT or IRONWORK. Best prices, prompt removal by experienced staff, covered by insurance for all risks.
FIRTH BLAKELEY, SONS, & CO., LTD., Second Hand Plant Department, CHURCH-FENTON, *via* LEEDS.

CONTRACTS OPEN.

MALVERN URBAN DISTRICT COUNCIL.
(GAS DEPARTMENT.)

QUOTATIONS are invited for Supply of STATION GOVERNOR and CONNECTIONS. Further Particulars to be obtained on application to The Gas Engineer, The Council House, Malvern.

Neither the lowest nor any Tender will necessarily be accepted.

GOOLE URBAN DISTRICT COUNCIL.

THE Gas and Water Committee are prepared to receive TENDERS for the EXTENSION of their MACHINE CHARGED HORIZONTAL CARBONIZING PLANT, and also for a NAPHTHALENE WASHING and GAS DRYING PLANT. Drawings may be inspected and Specifications obtained from the undersigned.

Tenders are to be delivered, addressed to the Chairman, Gas and Water Committee, not later than 12 noon, Wednesday, the 9th of April, 1930.

The lowest or any Tender will not necessarily be accepted.

ARTHUR F. YATES,
Engineer and Manager.

Gas-Works,
Doyle Street,
Goole,
March 29, 1930.

MATLOCK AND DISTRICT GAS COMPANY.

TENDERS FOR COAL.

THE Directors of the above Company are prepared to receive TENDERS for 8000 Tons of Large, Dry, Clean GAS NUTS for delivery during Twelve Months July 1, 1930, to June 30, 1931.

The Directors do not bind themselves to accept any Tender, and reserve the right to divide any Offer as they may decide.

The Tenders must be addressed to the Chairman, Matlock and District Gas Company, Matlock, and delivered not later than April 16, 1930. Envelopes to be plainly marked "Tender for Coal."

T. BROWN,
General Manager and Secretary.

38 YEARS' EXPERIENCE has enabled "BRISTOL'S" to offer THE LARGEST RANGE OF RECORDING INSTRUMENTS, all characterised by their simple, robust design and accuracy.

Recording Volt, Amp. and Watt-meters. Pyrometers. Time, Speed, Motion. Liquid Level Temperature Control, etc.

BUY BRISTOL'S AND BUY THE BEST Particulars from:
J. W. & C. J. PHILLIPS, LTD.,
23, College Hill, Cannon St., London, E.C. 4.

TROTTER, HAINES, & CORBETT LIMITED
BRETTEL'S ESTATE,
FIRE-CLAY & BRICK WORKS
STOURBRIDGE.

Manufacturers of GAS RETORTS, GLASSHOUSE FURNACE & BLAST FURNACE BRICKS, LUMPS, TILES, and every Description of FIRE BRICKS. Special Lumps, Tiles, and Bricks for Regenerative and Furnace Work.
SHIPMENTS PROMPTLY AND CAREFULLY EXECUTED.
LONDON OFFICE: E. C. BROWN & CO., LEADENHALL CHAMBERS, 4, ST. MARY AXE, E.C.

ELLIS, KEY & CO.
2, South John Street,
:: LIVERPOOL ::
Dutch Bog Ore
(OXIDE OF IRON)
Telephone No.: Bank 4609. *Telegraphic Address: "Asphalt," Liverpool.*

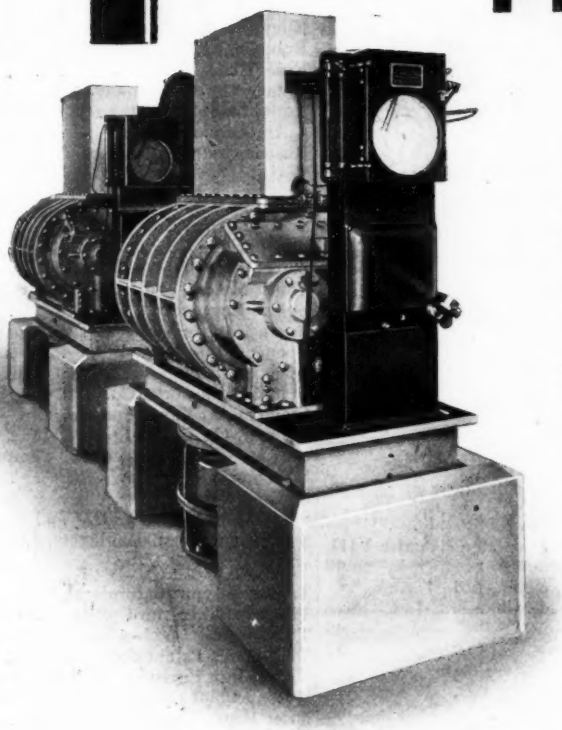
NEW "THOMPSON"
BOILERS
EX STOCK.

MOST MODERN "DISH-END" TYPE
WITH CORRUGATED SECTIONS.

	W.P.	Shop No.
Two 30 ft. × 9 ft. 3 ins.	× 200 lbs.	6947/8
One 30 ft. × 9 ft. 3 ins.	× 180 lbs.	6862
Two 30 ft. × 9 ft. 3 ins.	× 160 lbs.	6848/9
One 30 ft. × 9 ft. 3 ins.	× 120 lbs.	6889
Two 30 ft. × 8 ft. 6 ins.	× 160 lbs.	6970/1
Two 30 ft. × 8 ft. 3 ins.	× 160 lbs.	6871/2
One 30 ft. × 8 ft. 3 ins.	× 120 lbs.	6931
One 28 ft. × 7 ft. 6 ins.	× 160 lbs.	6785
Two 20 ft. × 6 ft. 0 ins.	× 150 lbs.	6864/5

All the above Boilers are built from "Siemens Martin" Acid Steel.
SUPERHEATERS AND PIPEWORK INSTALLATIONS.
Repairs to all types of Boilers by first-class men.
JOHN THOMPSON
(WOLVERHAMPTON) LTD.,
WOLVERHAMPTON, ENG.

Here are 2 HOLMES CONNERSVILLE PRODUCTS

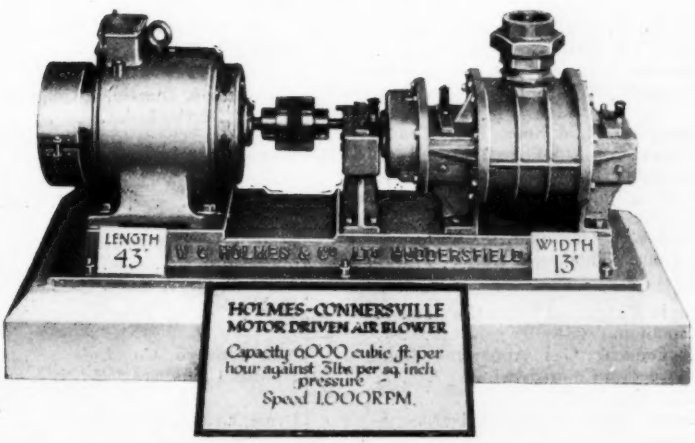


TWO 120,000 CU. FT. PER HOUR STATION METERS, EQUIPPED WITH PRESSURE—VOLUME TEMPERATURE—TIME RECORDING INSTRUMENTS.

THEY HAVE RECENTLY DISPLACED OLD TYPE STATION METERS IN A LARGE LONDON GASWORKS.

CONNERSVILLE BOOSTER DIRECT COUPLED TO 1000 R.P.M. 2.5 H.P. ELECTRIC MOTOR. NET DELIVERY 6000 CUBIC FEET PER HOUR AGAINST 3 POUNDS PRESSURE.

NOTE SMALL FLOOR SPACE OCCUPIED.



One of our Exhibits at the B.I. FAIR.

Founded 1850 HOLMES CONNERSVILLE PLANT

Sole Licensees:

W.C. HOLMES & COMPANY LIMITED

Turnbridge, Huddersfield.

Telegrams: Holmes, Huddersfield.
Telephone: 1573 Pvte. Branch Exchange.

LONDON OFFICE:
119, Victoria St., S.W. 1.
Telegrams: Ignitor, Sowest, London.
Telephone: Victoria 4505.

INDEX TO "JOURNAL" ADVERTISERS.

	PAGE
Abbott, Birks, & Co.	—
Alder & Mackay, Ltd.	5
Aldridge & Ranken, Ltd.	—
Allan, Thomas, & Sons, Ltd.	—
Anglo-American Oil Company, Ltd.	—
Arden Hill & Co.	—
Armco International Corporation.	11
Asbestos Cement Building Products, Ltd.	—
Ashmore, Benson, Pease, & Co., Ltd.	14
Ashwell & Nesbit, Ltd.	—
Bagnall, John, & Sons, Ltd.	—
Bagshawe & Co., Ltd.	—
Bale & Church, Ltd.	49
Barclay, Andrew, Sons, & Co., Ltd.	—
Barrowfield Ironworks, Ltd.	—
Bell's Poilite & Everite Co., Ltd.	—
Berk, F. W., & Co., Ltd.	—
Blakeley (Firth), Sons, & Co., Ltd.	50
Braddock, J. & J.	Wrapper II., 49
Bray, George, & Co., Ltd.	—
British Aluminium Co., Ltd.	—
British Fibrocement Works, Ltd.	—
British Furnaces, Ltd.	—
British Gas Purifying Materials Co.	49
British Thomson-Houston Co., Ltd.	—
Broadbent, Thos., & Son, Ltd.	—
Bugden, T., & Co.	—
Cambridge Instrument Co., Ltd.	—
Cannon Iron Foundries, Ltd.	—
Carless, Capel, & Leonard	—
Carron Company	—
Celite Products Corporation	—
Chapman (Spencer) & Messel, Ltd.	49
Chemical Engineering and Wilton's Patent Furnace Co., Ltd.	12, 49
Clapham Bros., Ltd.	60
Clayton, Son, & Co., Ltd.	59
Cloake, A. G.	—
Coleman Foundry Equipment Co.	—
Cort, Robert, & Son, Ltd.	—
Cowan, W. & B.	Wrapper III.
Crossley Bros. (Bispham)	54
Crossley Brothers, Ltd. (Openshaw)	4
Cutler, Samuel, & Sons, Ltd.	—
Danks, H. & T. (Netherton), Ltd.	49
Davis Gas Stove Co., Ltd.	—
Davison & Partner, Ltd.	Centre IX.
Dempster, R. & J., Ltd.	Wrapper I., Centre X.
Dempster, R., & Sons., Ltd.	Centre II., 50
Donkin Co., Ltd. (The Bryan)	Wrapper II.
Dougall's Gas Meters, Ltd.	14
Drakes, Ltd.	Centre VI.
Dry Gasholders, Ltd.	10
Duckham, Alexander, & Co., Ltd.	—
Duxbury, Thomas, & Co.	Wrapper I.
Eagle Range and Grate Co.	—
Economic Gas Boiler Co., Ltd.	—
Economical Gas Apparatus Construction Company, Ltd.	49
Ellis, Key, & Co.	50
Evans, Joseph, & Son (Wolverhampton), Ltd.	1
Expanded Metal Company, Ltd.	59
Falk, Stadelmann, & Co., Ltd.	7
Fletcher, Russell, & Co., Ltd.	13
Foster & Pullen, Ltd.	—
Foster Bros., Ltd.	—
Fraser & Chalmers Engineering Works	—
Gas Chambers and Coke Ovens, Ltd.	—
Gas Purification and Chemical Co.	Wrapper I., 49
Gas Meter Co., Ltd.	Wrapper IV.
General Gas Appliances, Ltd.	17
General Refractories, Ltd.	—
Gibbons Bros., Ltd.	—
Gledhill-Brook Time Recorders	—
Glenboig Union Fireclay Co., Ltd.	Wrapper II.
Glover, George, & Co., Ltd.	Wrapper I.
Glover, Thos., & Co., Ltd.	18
Goodall, Clayton, & Co., Ltd.	—
Grant, David, & Co.	—
Green & Boulding, Ltd.	—
Griffin & Tatlock, Ltd.	—
Griffiths Bros. & Co. (London), Ltd.	Wrapper I.
Hall, John, & Co., Stourbridge, Ltd.	—
Hardtmuth, L. & C.	—
Harris & Pearson	Wrapper IV.
Head, Wrightson, & Co., Ltd.	54
Heathman, J. H.	—
Hislop, R. & G.	—
Holmes, W. C., & Co., Ltd.	51
Holst, K., & Co.	—
Horseley Bridge and Engineering Company, Ltd.	—
Horstmann Gear Company, Ltd.	—
Hortonspheres	6
Humphreys & Glasgow, Ltd.	16
Hutchinson Bros., Ltd.	49
Institute of Chemistry	54
Jenkins, W. J., & Co., Ltd.	15
Kaye, Joseph, & Sons, Ltd.	—
Keith, James, & Blackman Company, Ltd.	60
Kent, George, Ltd.	—
King, D., & Son	—
King, Walter, Ltd.	Centre VIII.
King's Patent Agency	49
Kinnell, Chas. P., & Co., Ltd.	—
Kirkham, Hulett, & Chandler, Ltd.	—
Kleenoff Co.	49
Koppers Coke Oven Co., Ltd.	57
Laidlaw, R., & Son (Edin.), Ltd.	—
Le Bas Tube Co., Ltd.	—
Lead Wool Company, Ltd.	—
Lewis, Edwin, & Sons, Ltd.	—
Lighting Trades Ltd.	—
London Electric Firm, The	Wrapper II.
London Gas Exhibit	53
Macpherson, Donald, & Co., Ltd.	1
Main, R. & A., Ltd.	Centre VII.
Manchester Oxide Co., Ltd.	49
McKelvie, James, & Co.	Wrapper I.
Metropolitan Vickers Electrical Co., Ltd.	—
Mewburn, Ellis, & Co.	49
Midland Flexible Metallic Tubing Co., Ltd.	—
Mitchell, H., & Co.	Wrapper I.
Mobberley & Perry, Ltd.	55
New Conveyor Co., Ltd.	—
Newton Chambers & Co., Ltd.	—
Orme, George, & Co.	2
Oughtibridge Silica Firebrick Co.	—
Parkinson Stove Co., Ltd.	Centre III.
Parkinson, W., & Co.	4, 18
Patent Retorts, Ltd.	1
Pearson, E. J. & J., Ltd.	—
Peckett & Sons, Ltd.	56
Peebles & Co., Ltd.	58
Penney & Porter, Ltd.	—
Perfecta Meters, Ltd.	53
Phillips, J. W. & C. J., Ltd.	50
Piggott, Thos., & Co., Ltd.	—
Pocock, Herbert	Wrapper I.
Potterton, T. (Heating Engineers), Ltd.	Centre XI.
Premier Gas Engine Co., Ltd.	—
Pulsometer Engineering Company	—
Purimachos Ltd.	54
Quasi-Arc Co., Ltd.	Wrapper I.
Radiation Ltd.	Centre IV., V., 9, 13
Raschig, Dr. F., G.m.b.H.	—
Reavell & Co., Ltd.	58
Renold, Hans, Ltd.	—
Richmonds Gas Stove Co., Ltd.	9
Ride & Bell, Ltd.	—
Riley, A. J., & Sons, Ltd.	—
Riley, John, & Sons, Ltd.	49
Robinson, J. H., & Co. (L'pool), Ltd.	—
Ross, Chas., Ltd.	49
Rotary Meter Company, Ltd.	55
Rotherham and District Collieries Association, Ltd.	—
Ruscoe, John, & Co., Ltd.	—
Sawer & Purves	—
Scottish Tube Co., Ltd.	—
Sheepbridge Coal and Iron Co., Ltd.	—
Siebe, Gorman, & Co., Ltd.	—
Smith Meters, Ltd.	Centre IX.
Solent Engineering Co., Ltd.	—
South Metropolitan Gas Company	—
Spencer-Bonecourt, Ltd.	—
Spencer Chapman & Messel, Ltd.	49
Stanton Ironworks Co., Ltd.	—
Staveley Coal and Iron Co., Ltd.	—
Stein, J. G., & Co., Ltd.	—
Stewarts and Lloyds, Ltd.	Wrapper I., 58
Strachan & Henshaw, Ltd.	50
Stringer Bros.	—
Sugg, Wm., & Co., Ltd.	3
Super-Centrifugal Engineers, Ltd.	—
Taylor, Joseph (Saturators), Ltd.	56
Thames Bank Iron Co., Ltd.	47
Thompson, J. (Wolverhampton), Ltd	50
Tilghman's Patent Sand Blast Co.	—
Tilley High Pressure Gas Synd., Ltd.	—
Torbay Paint Company, Ltd.	Wrapper I.
Trier Bros., Ltd.	—
Trotter, Haines, and Corbett, Ltd.	50
Tully Sons & Co., Ltd	—
Turner Brothers Asbestos Co., Ltd.	—
Turner, F. (Art Meta) Ltd.	56
Vertical Gas Retort Synd., Ltd.	Wrapper I.
Vickery, J. H., & Co., Ltd.	—
Wailes Dove Bitumastic, Ltd.	—
Walker, C. & W., Ltd.	7
Waller, Geo., & Son, Ltd.	2
Walworth, Ltd.	4
Ward, Thos. W., Ltd.	—
Waterless Gasholder Co., Ltd.	8
Wellington Tube Works, Ltd.	—
Welsbach Light Company, Ltd.	—
West's Gas Improvement Co.	Centre XII.
Westwood & Wrights	56
Whessoe Foundry and Eng. Co., Ltd.	—
Willey & Co., Ltd.	Centre X.
Williamson, Cliff, Ltd.	Wrapper IV.
Wilson (George) Gas Meters, Ltd.	49
Wilsons & Mathiesons, Ltd.	—
Winn, Paul, & Co., Ltd.	5
Woodall-Duckham Co., Ltd.	Centre I.
Woolley, James, Sons & Co., Ltd.	—
Wright, Alex., and Co., Ltd.	Centre XI.
Wright, John, & Co.	—

Appointments Vacant & Wanted	49, 50
Company Notices	—
Contracts Open	50
Educational	—
Patent Notices, &c.	—
Plant, &c., for Sale and Wanted	50
Stock Issues	47

IDEAL HOME EXHIBITION
OLYMPIA.

March 24 to April 17, 1930, inclusive.

LONDON GAS EXHIBIT

Stand 135 Ground Floor, Empire Hall.

A complete display of Modern Gas Lighting, Heating, Cooking, and Water-Heating appliances for the Home; also Refrigerators which are operated by Gas. Special features include Modern Coke Fires, and a new Gas Boiler for Central Heating.

ASSOCIATED GAS COMPANIES.

The Commercial Gas Co., Harford Street, Stepney, E. 1.
The Croydon Gas Co., Katharine Street, Croydon.
The Gas Light and Coke Co., Horseferry Road, Westminster, S.W. 1.
The South Metropolitan Gas Co., 709, Old Kent Road, S.E. 15.
The South Suburban Gas Co., Lower Sydenham, S.E. 26.
The Tottenham and District Gas Company, 639, High Road, Tottenham, N. 17.
The Wandsworth, Wimbledon, & Epsom District Gas Co., Fairfield Street, Wandsworth, S.W. 18.

Perfecta

Identical in design and method of working to the meter for which a Board of Trade Certificate has been granted.

Fitted as a standard with Direct Reading Index and new improved change plate attachment complete with valve closing mechanism.

Small size and special arrangement of the inlet and outlet pipe with the use of bent unions offering the greatest facilities for fixing.

Capacity 40/60 c.ft. per hour, and overall dimensions 12½" × 12" × 10".

For particulars apply to:

PERFECTA METERS, LTD., NIGHTINGALE GROVE, HITHER GREEN, LONDON, S.E. 13

Telephone: Lee Green 2733 Telegrams: Perfecmeta, Lewis, London

INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND

Founded 1877. *Incorporated by Royal Charter*, 1885.

THE REGULATIONS FOR ADMISSION OF STUDENTS, ASSOCIATES AND FELLOWS OF THE INSTITUTE can be obtained (gratis) on application to the Registrar.

APPOINTMENTS REGISTER.—A REGISTER OF CHEMISTS WHO ARE AVAILABLE FOR APPOINTMENTS or who are seeking to improve their positions is kept at the office of the Institute. The facilities afforded by this Register are available (gratis) to Companies and Firms requiring the services of Chemists, and to Universities, Colleges and Technical Schools requiring Teachers of Chemistry and Technology. A Register of Junior Assistants is also available.

All Communications to be addressed to

The Registrar, The Institute of Chemistry, 30, Russell Square, W.C. 1.

STANDARD FIRE CEMENTS

Purimachos Plastic Fire Cement (Regd)

Drykos Dry Fire Cement (Regd)

Unsurpassed for setting and repairing Retorts, washing the insides of Retorts to form a Glaze, and for all other purposes where strong, gas-tight joints are essential.

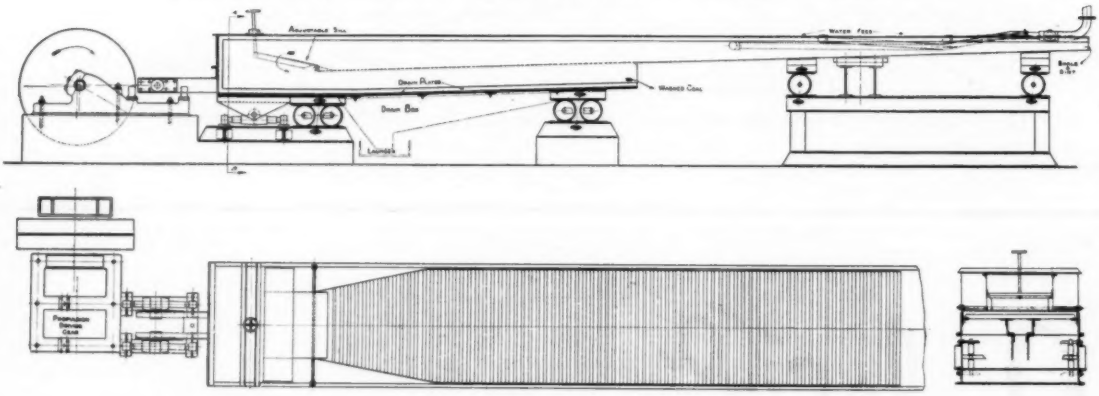
A free working sample of either Cement will be forwarded on application.

PURIMACHOS LTD. 34, St. PHILIP'S, BRISTOL.

HEAD, WRIGHTSON & Co. Ld.

THORNABY-ON-TEES AND STOCKTON-ON-TEES

MAKERS OF GENERAL GAS PLANT



Outline of "Nota nos" Washer

THE

"NOTA NOS" PAN ASH WASHER

RECOVERS **100** TONS OF USABLE COKE
FROM ABOUT **300** TONS OF PAN ASH

CROSSLEY BROTHERS, - - Grid Works, - - BISPHAM, LANCS.

MAKERS OF BEST QUALITY

GRIDS

OF ALL TYPES FOR

Purifiers, Scrubbers, and Washers.

Engineering Woodwork of all kinds.

Telegrams: "Crossley, Bispham." Tel. No. 1339.

SPECIAL BB QUALITY

RETORT SETTINGS

Our special B.B. quality Retorts are second to none—horizontal, vertical or inclined, to New Standard Specifications. Their very high refractory quality gives them considerable length of life.

Our high grade refractory bricks also are of A 1 quality, and we make a speciality of Blue and Brindled bricks for retort houses, with a crushing strength which has been tested to 199 Tons.

Quotations and samples will gladly be sent upon request.

MOBBERLEY & PERRY LIMITED

TELEPHONE Nos.—
128 & 129 BRIERLEY HILL.

STOURBRIDGE.

TELEGRAMS—
MOBBERLEY PERRY, HOLLY HALL.

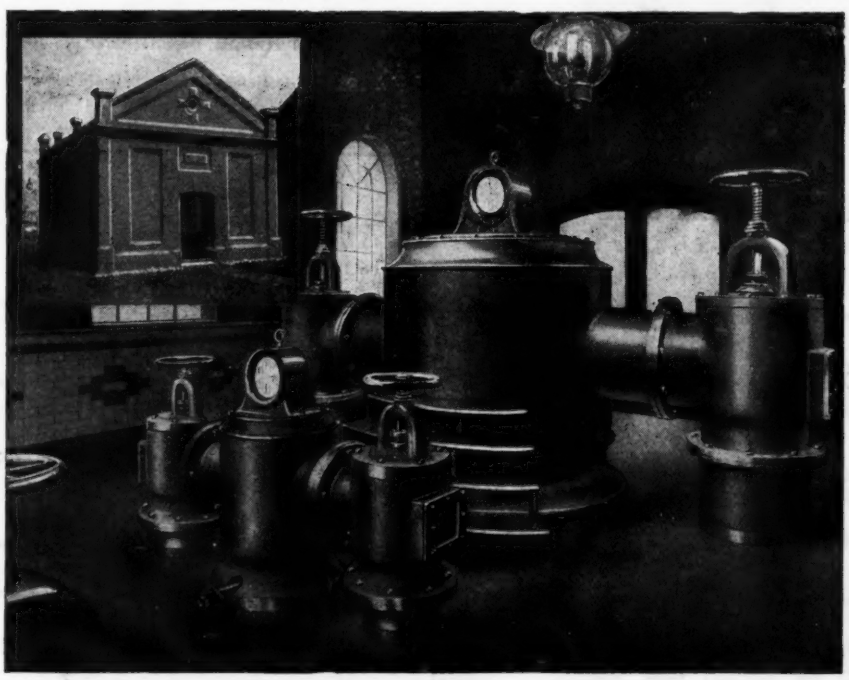


Illustration showing Station Meter House with two Type A Rotary Meters and Valves

THIS INSTALLATION measuring the entire make of purified coal gas, was only ordered after a prolonged test of a Rotary Meter run tandem with a Station Meter of the ordinary Wet Drum Type.

ROTARY METERS

RANK SECOND ONLY TO THE POSITIVE WET DRUM TYPE of STATION METER and are GREATLY SUPERIOR to any INFERENTIAL METER.

STANDARD TYPE FOR CLEAN PURIFIED COAL or WATER GAS.

SPECIAL DESIGN FOR UNPURIFIED GASES.

INEXPENSIVE
ACCURATE
RELIABLE

Send us a note of your requirements and we shall know what to suggest.

THE ROTARY METER COMPANY, LTD., Talbot Rd., Stretford, Manchester.

SATURATORS
Leadwork (Taylors)
818
Bolton.
SUPPLIED
Telegrams: "Saturators, Bolton"
Telephone: 898, Bolton.

The Problem
How to dispose of the now old-fashioned black gas fires.

The Solution
Modernise them with the "Toga" Art-Metal Sheath.

The "TOGA"
Art-Metal Sheath

can be fixed over any standard gas fire in a few minutes, converting the usual black gas fire into a handsome metal sheathed fire of modern appearance in any Art-Metal Finish.

Why not write for full particulars and prices? Illustrated Catalogue on request.

F. TURNER (ART-METAL) LIMITED
61-63, Summer Hill St., BIRMINGHAM
'Phone: Central 0704. 'Grams: "Artistique ('Phone), Birmingham."

GASHOLDERS.
WESTWOOD & WRIGHTS.
BRIERLEY HILL.

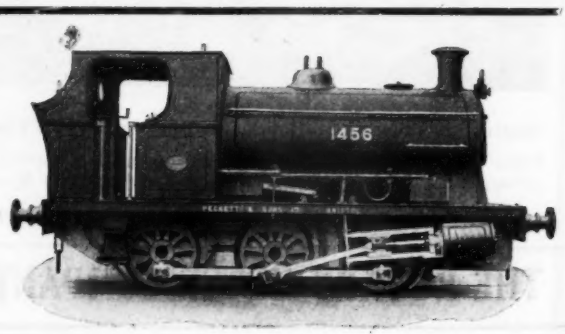
GAS PLANT OF EVERY DESCRIPTION & SIZE.
PRESSURE RELIEVERS FOR GASHOLDER CUPS.
GAS VALVES WITH PATENT INDICATORS & LUBRICATING FACES.
MOUTHPIECES with DETACHABLE FACES, also AUTOMATIC FASTENINGS
FURNACE & OTHER DOORS, also MOUTHPIECES with ASBESTOS JOINTS.
STRUCTURAL IRON AND STEEL WORK.

LOCOMOTIVES

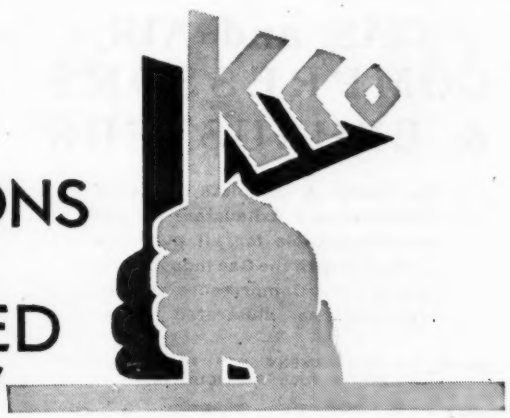
LOCOMOTIVES of all Sizes and Gauges specially constructed for Main and Branch Lines, Contractors, Docks, Gas-Works, Collieries, Iron-Works, Brick and Cement Works, &c. Locomotives of various Sizes always in progress for early delivery.

Photographs, Specifications, and Prices on Application.

PECKETT & SONS, Atlas Locomotive Works, LTD., BRISTOL.
Telegraphic Address: "PECKETT BRISTOL."
London Representatives: FERGUSON & PALMER, 6, Victoria St., Westminster, S.W.1



18 MILLION TONS OF COAL CARBONISED ANNUALLY



KOPPERS COMBINATION OVENS carbonised over 18 million tons of coal in 1928, which is equal to the entire quantity used by the British Gas Industry.

The unrivalled experience gained by Koppers engineers in the erection of Combination Oven plants producing high grade gas, has persuaded the Gas Light & Coke Company of London to utilise similar Koppers plant in their Beckton Gas Works. This installation will be designed to carbonise 1,200 tons of coal per day, with a daily yield of 85,000 therms of gas.

Every Koppers Combination Oven is a profitable investment, and always a potential source of *additional* profit. It will produce the highest possible therm yield of best quality gas; and give an extra service when required, by liberating the whole of the oven gas for town purposes.

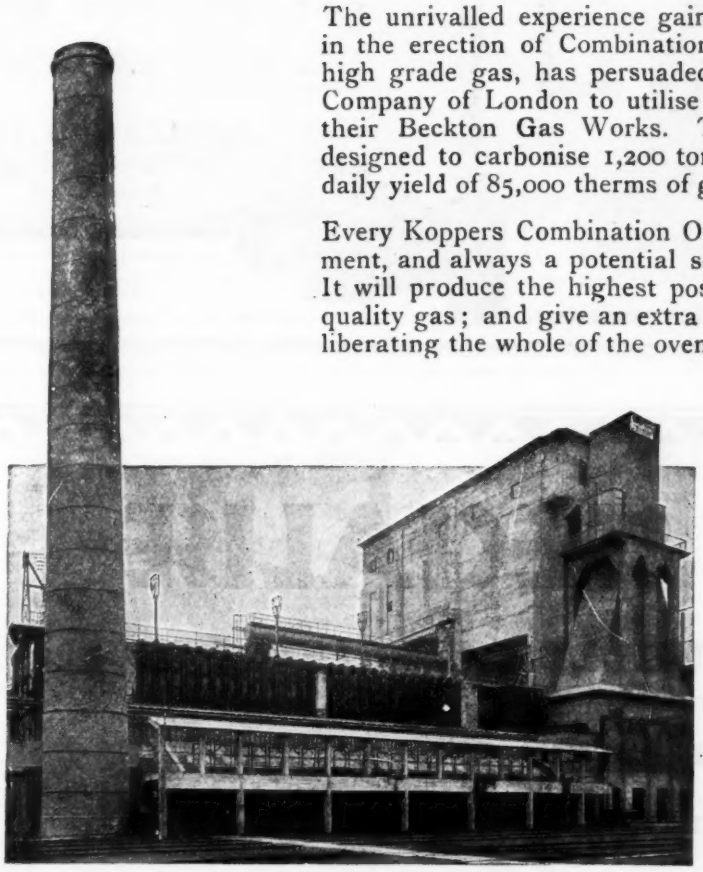


ILLUSTRATION:
Koppers Combination Oven Plant at Düsseldorf Gas Works, carbonising 400 tons of coal per day.

KOPPERS
COKE OVEN CO., LTD.
301, GLOSSOP ROAD, SHEFFIELD

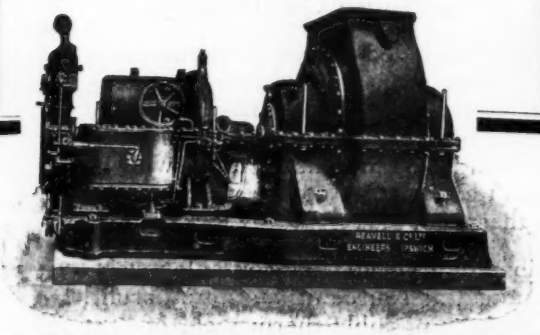
Telegrams: "KOPROVEN, SHEFFIELD." Telephones: SHEFFIELD 60051 (3 lines).

GAS and AIR COMPRESSORS & EXHAUSTERS

We supply a complete range of Compressors & Exhausters for gas and air, suitable for all purposes connected with the Gas Industry, including Turbo Compressors for large capacities, as illustrated below.

WRITE TO DEPARTMENT "J" FOR PAMPHLETS GIVING FULL PARTICULARS.

REAVELL & Co., LTD.,
RANELAGH WORKS, IPSWICH



No. 137

Our No. 137 is the governor we advocate for street lamps.

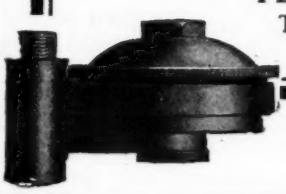
Many gas companies use this type for street lighting, and besides improving the lighting efficiency save many £'s per year.

Peebles

STREET LAMP PRESSURE GOVERNOR.

Customers desiring a governor giving a fixed consumption should use our volumetric governor No. 135.

PEEBLES & CO., LTD.
Tay Works, Bonnington,
Edinburgh.



Pressure Governor ensuring constant pressure to burner nipple

E.I.H.

WE SPECIALISE

IN

GENUINE PUDDLED WROUGHT IRON

TO THE SPECIFICATIONS

OF THE INSTITUTION OF GAS ENGINEERS

TO ENSURE SATISFACTION
SPECIFY

S&L

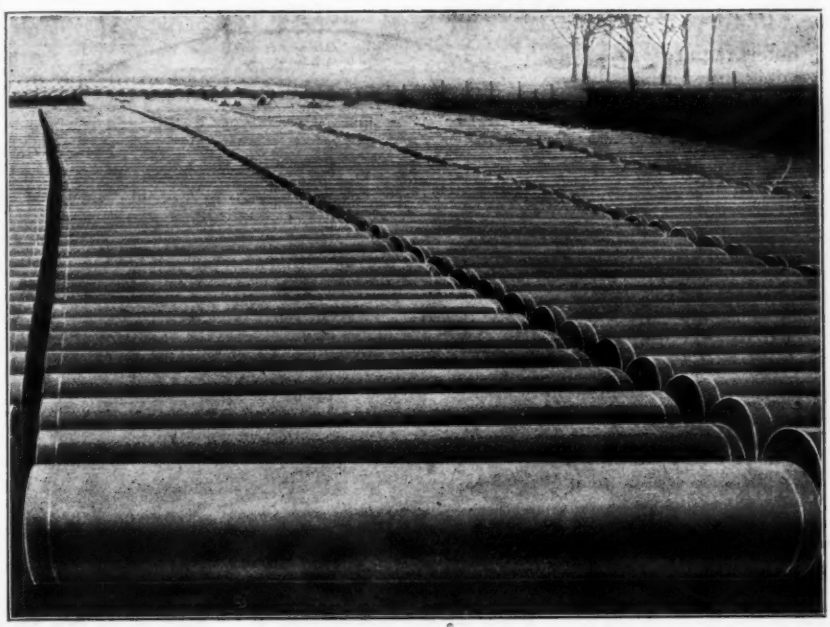
BRAND

STEWARTS AND LLOYDS LTD.

GLASGOW BIRMINGHAM LONDON

CLAYTON, SON & CO., LTD.

PEPPER ROAD, HUNSLET, LEEDS



WELDED STEEL WATER MAINS 40" DIAMETER
PORTION OF CONTRACT FOR 4,000 TONS

WELDED STEEL MAINS

FOR

GAS AND WATER

DIAMETERS-16"to72"
LENGTHS - Up to 25 ft.

CEMENT OR BITUMINOUS LININGS

Inquiries Invited

London Office:
5, VICTORIA ST., S.W.1
Wires - - "Welders, Leeds"

"EXPAMET" (REG.) EXPANDED METAL

The Ideal Reinforcement for Concrete.

Seaford Gas Works.
"Expamet"-Concrete Foundation to Gasholder Tank
Engineer: Mr. L. D. Mosley.

The Company is prepared to submit, FREE OF CHARGE, designs and estimates for the reinforcement for all forms of Reinforced Concrete Work.

Write for Illustrated Literature.

THE EXPANDED METAL CO., LTD.,

Patentees and Manufacturers of Expanded Metal,
Engineers for all forms of Reinforced Concrete Work,

Burwood House, Caxton St., London, S.W. 1.

Works: West Hartlepool. ***Established over 35 years.***

Are there any

RESTAURANTS *or* HOTELS ?

in your area

EVERY restaurant and hotel requires a constant supply of large quantities of hot water for washing up, etc.

The "Keith-Blackman" Gas-fired Boiler illustrated is just the Boiler for them, because whilst it is a powerful boiler capable of heating large quantities of hot water quickly and at a low cost, it is so compact that it takes up very little space and is economical in first cost and fixing charges.

Many of these boilers are used by the world's largest Restaurants and Hotels.

WE shall be pleased to send you List G141, containing full particulars and prices of these boilers, and also to co-operate with your salesmen to our mutual advantage.

The "K B" Gas-fired Boiler is made in 4 sizes—40, 80, 120 and 160 gals. capacity, respectively.

Keith-Blackman

Gas Equipment for Industrial Heating

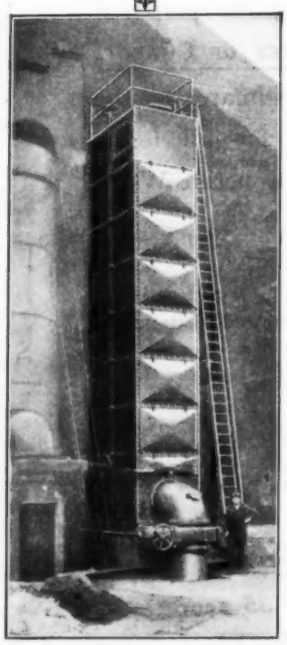
JAMES KEITH & BLACKMAN CO., LTD., HEAD OFFICE: 27, FARRINGDON AVENUE, LONDON, E.C. 4

Telephone No.: Central 7091 (seven lines). Telegraphic Address: "James Keith, Phone, London."

88,992,000

B.T.U.'s ARE BEING REMOVED
EVERY 24 HOURS
BY THIS SINGLE TOWER

"ECLIPSE" HORIZONTAL TUBE CONDENSER.



Instal "Eclipse" Condensers and ensure

HIGHEST EFFICIENCY,
CORRECT THEORETICAL AND CONSTRUCTIONAL DESIGN,
ACCESSIBILITY,
NEAT APPEARANCE,
BEST QUALITY BRITISH MATERIALS & WORKMANSHIP.

CLAPHAM BROS., LTD.

ESTB. 1837 KEIGHLEY YORKS Tel.: KEIGHLEY 2787 & 2788

Printed (at the Chancery Lane Printing Works, Ltd.) for Walter King, Ltd., 11, Bolt Court, Fleet Street, London, E.C. 4.—Wednesday, April 2, 1930